

TIME



WARNING: WE ARE NOT READY FOR THE NEXT PANDEMIC

SCIENCE KNOWS
HOW TO FIGHT
AN OUTBREAK—
BUT POLICY STILL
GETS IN THE WAY
BY BRYAN WALSH

HOW TO KEEP THE
WORLD SAFE
BY BILL GATES



6 | Conversation 8 | For the Record

The Brief

News from the U.S. and around the world

11 | In his first 100 days, President Trump struggled to parlay private-sector expertise into public-sector wins

14 | Ian Bremmer: Venezuela is on the brink of collapse

15 | Tribute to the late director Jonathan Demme

16 | The challenges of building a border wall, by the numbers

The View

Ideas, opinion, innovations

21 | A physicist's new book debunks popular myths about **aliens**

25 | The real history of **Cinco de Mayo**

26 | The truth about how much **salt** is in popular foods

27 | The irony in Starbucks' **Unicorn Frappuccino** craze

28 | What smart-home gadgets mean for the future of **privacy**

31 | Jon Meacham on the implications of Trump's selective use of history

The Features

▣ The Pandemic Panic

Pandemics are the biggest global security threat that countries aren't ready for. Scientific understanding of infectious disease is better than ever, but policies and health care systems are decades behind
By Bryan Walsh **32**

The Future of Korea

Moon Jae-in, the front runner in South Korea's upcoming presidential election, believes in engaging with North Korea
By Charlie Campbell **40**

The Circus Leaves Town

A vestige of a time when entertainment was a lot harder to come by, Ringling Bros. and Barnum & Bailey folds its tent after a 146-year run
By David Von Drehle **44**

TimeOff

What to watch, read, see and do

51 | Groundhog Day and the rise of Broadway musicals based on movies

53 | Reviews: *The Handmaid's Tale* and *Guardians of the Galaxy Vol. 2*

56 | Paula Hawkins' latest novel, *Into the Water*

59 | Susanna Schrobbsdorff: *Privilege* is in the eye of the beholder

60 | 9 Questions for *Olive Kitteridge* author **Elizabeth Strout**

▲ *A trained pig backstage at one of the last performances of Ringling Bros. and Barnum & Bailey Circus, in Baltimore on April 28*

Photograph by Andres Kudacki for TIME

ON THE COVER: *Ebola virus under a microscope. Image by Henrik5000—Getty Images*

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What you said about ...

THE TIME 100 Sarah Deschamps of Naples, Fla., was one of many readers who praised TIME's annual list of the world's most influential people, calling it a much-needed reminder that "there are people reaching high, and bringing us up with them." Others thought the issue was missing several players, including former TIME 100 members Bernie Sanders, Hillary Clinton and Elon Musk. Refinery29's Sesali Bowen, meanwhile, spotlighted the diverse range of talent TIME recognized, both on the list and as writers. "Not only is TIME honoring people of color as influential, it also trusts that people of color are among the experts who can support its claims," she wrote. "To all of the other awarding bodies and institutions: This is how it's done."

'Your issue on "The 100 Most Influential People" is a coffee-table keeper.'

GAIL S. MARSHALL,
Swan Lake, N.Y.

"LET'S TALK ABOUT GRIEF" Many readers responded literally to the cover line on TIME's April 24 issue, in which Facebook's Sheryl Sandberg opened up about life after losing her husband. Patricia Hathaway of Annapolis, Md., said that Sandberg managed to convey the feelings she has been "unable to express" in the wake of the loss of her husband of 27 years. But Ron Hoag of Oviedo, Fla., whose daughter died two years ago, noted that Sandberg's struggle is not new: "It's unfortunate that it takes someone with Ms. Sandberg's network and stature to bring the subject of grief to everyone's attention." As Mary Ann Wolpert of Lancaster, Pa., a nurse who has worked in bereavement care for 40 years, put it, "We all live in a bubble until the unthinkable happens."



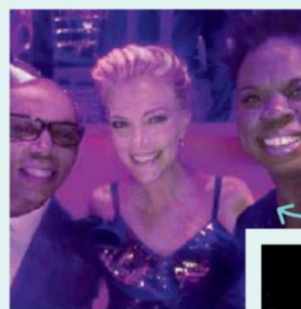
INSIDE THE GALA

On April 25, dozens of the world's most influential people gathered at New York City's Jazz at Lincoln Center for the annual TIME 100 gala. "Influence has a cost," said TIME editor-in-chief Nancy Gibbs during her opening remarks, citing the challenges of effecting change in business, politics, health care and more. "But the reward is great as well, [especially] for those who bring us together."



BUZZ-WORTHY

How this year's TIME 100 reacted on social media



Leslie Jones (right, with tablemates RuPaul and Megyn Kelly) tweeted that she "had a ball"

Transgender-rights activist Gavin Grimm (in tie) posted a photo with his mother Deirdre and couple Ryan Reynolds and Blake Lively



SETTING THE RECORD STRAIGHT ▶ In "The Beginning of the End" (April 24), two photo captions misstated the locations in Mosul of a police sniper post and a nearby alley. They were in the Aqeedat neighborhood. In the TIME 100 issue (May 1/May 8), we misidentified Ed Sheeran's 2016 Grammy Awards. "Thinking Out Loud" won Song of the Year, but not Record of the Year.

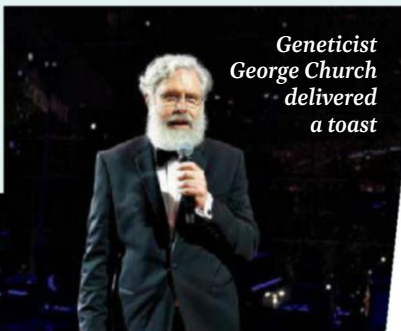
TALK TO US

SEND AN EMAIL:
letters@time.com
Please do not send attachments

FOLLOW US:
[facebook.com/time](https://www.facebook.com/time)
[@time](https://www.instagram.com/time) (Twitter and Instagram)



From left: Blake Lively, Ryan Reynolds, *TIME* editor-in-chief Nancy Gibbs, Viola Davis and spouse Julius Tennon shared a table



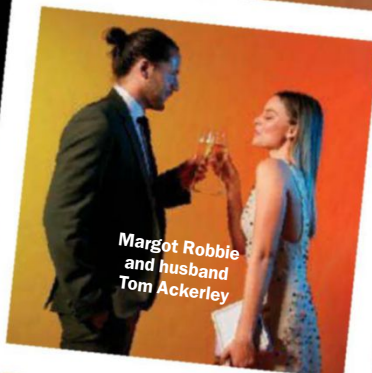
Geneticist George Church delivered a toast

STRIKE A POSE

A sampling of the partygoers in *TIME*'s photo booth



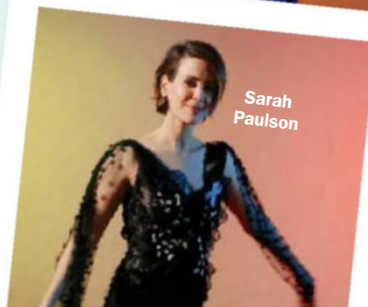
Fan Bingbing



Margot Robbie and husband Tom Ackerley



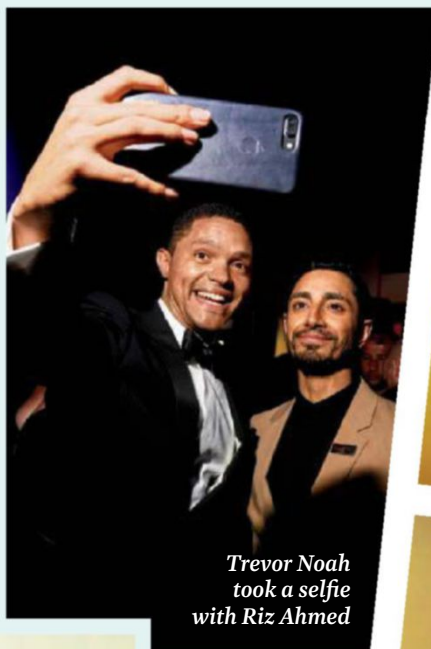
Ava DuVernay



Sarah Paulson



Women's March organizers Linda Sarsour (in hijab) and Carmen Perez were among the many fans of John Legend's performance



Trevor Noah took a selfie with Riz Ahmed



John Legend posted a video of his daughter Luna saying "Dada" when she saw his face on the cover of *TIME*



Arianna Huffington, who wrote Demi Lovato's *TIME* 100 tribute, shared a photo of the two hugging at the gala

Letters should include the writer's full name, address and home telephone and may be edited for purposes of clarity and space

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'If the election had been on Oct. 27, I would be your President.'

HILLARY CLINTON, former U.S. Secretary of State and presidential candidate, arguing that she was "on the way to winning" the 2016 election until the FBI reopened its investigation into her private email server and WikiLeaks published hacked emails



\$2,000

Amount of cash that 6-year-old Jasper Dopman found in a bank bag on the ground near his Massachusetts school; he received an Outstanding Citizen Award on April 27 for turning the bag over to the police, who determined that the money had been lost by a restaurant employee

10

Number of *Orange Is the New Black* episodes that hackers leaked ahead of the show's fifth-season premiere, after Netflix refused to pay ransom

'We are a pragmatic and civilized movement. We do not hate the Jews.'

HAMAS, the Palestinian militant group, in a new manifesto that appears to moderate its stance on Israel; it was released ahead of Palestinian Authority leader Mahmoud Abbas' meeting with President Trump on May 3

4

Number of 8-oz. cups of coffee that is safe to drink a day, according to a scientific review of more than 400 coffee-related studies conducted from 2001 to 2015



Seacrest
American Idol host Ryan Seacrest is set to be Kelly Ripa's new permanent Live! co-host



Bering Sea
President Trump revoked Obama's Executive Order protecting it from oil drilling

'IF YOUR BABY IS GOING TO DIE AND IT DOESN'T HAVE TO, IT SHOULDN'T MATTER HOW MUCH MONEY YOU MAKE.'

JIMMY KIMMEL, TV host, tearfully warning that Trump health proposals would price out many children and adults with pre-existing conditions, after emergency surgery on his newborn son

'Access to information is a fundamental human right.'

JIMMY WALES, Wikipedia founder, after Turkey blocked access to the crowdsourced online encyclopedia because it refused to remove content that the Turkish government deemed offensive

'THIS IS NOT MY FAULT, BUT I'M TAKING RESPONSIBILITY.'

JA RULE, rapper and co-founder of Fyre Festival, after poor planning forced organizers to cancel the luxury music event (tickets cost as much as \$12,000), leaving many attendees stranded in the Bahamas; he's now the target of a \$100 million class action



Let's
Go
Places



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THE MARS GENERATION

SOME DREAM OF SPACE
OTHERS DARE TO CONQUER IT



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The Brief

'PRODUCTION IS IN FREE FALL, INFLATION IS IN THE TRIPLE DIGITS AND HUNGER IS NOW A COMMON PROBLEM.' —PAGE 14



Trump in the Rose Garden shortly after tweeting on May 2 that a shutdown is still possible

POLITICS

The budget battle shows that Trump needs to read the fine print

By Philip Elliott

AS DONALD TRUMP'S WHITE HOUSE continued in hyperdrive to promote his first 100 days as a breakout reality-show hit, congressional aides a few blocks east were negotiating a deal to avert a disastrous government shutdown over the current funding agreement. The more than \$1 trillion, almost 1,700-page bill, which keeps the lights on through September, served as a reality check for the President: the 535 voting members of Congress cannot be ignored. "I think he needs to understand our democratic system and our separation of branches," says Democratic Senator Ben Cardin of Maryland. "This is not running a business. This is running a country."

No lesson has been so stinging for the neophyte President. His campaign promises face delay at the hands of an

unexpected impediment: Republicans in the House and Senate, where party leaders have for years honed world-class obstructionist skills. Many have criticized Trump's dreams of a \$1 trillion infrastructure plan, a border tax that would cost middle-class families dearly and especially a prompt repeal of Obamacare that, for now, seems back on the shelf. Trump found himself repeatedly bedeviled and outgunned. "It's not fair," Trump told Fox News in an interview on the eve of his 100-day mark. "It forces you to make bad decisions. I mean, you're really forced into doing things that you would normally not do except for these archaic rules." Trump used the word *archaic* three more times in 20 minutes. Around the White House, Trump huffed that he hasn't yet been

able to translate his real estate skills into legislative wins. He fumed that cable news cast him as a loser in the budget, even as his aides were promoting it. Trump took to Twitter, renewing threats of a “good shutdown” in September and changing Senate rules to make it easier to score wins. On the rule change, the top Republican in the Senate, Mitch McConnell, responded, “That will not happen.”

None of the drama reflected the contents of a budget that allows the government to avoid an embarrassing shutdown. Lawmakers boost spending to the Pentagon by \$15 billion (well short of the \$54 billion Trump wanted) and to the National Institutes of Health by \$2 billion (Trump sought to gut the popular medical research labs). Republicans can cite both as reasons to cheer. “I think it’s important that we govern and not just shut down the government,” said Senator John Cornyn of Texas. “I think we need to move on.”

Meanwhile, the spending stopgap preserves programs at the Environmental Protection Agency and provides none of the \$1.4 billion Trump wanted to start building a wall along the U.S.-Mexico border—moves that Democrats can claim as victories. In fact, the bill explicitly blocks Trump from even firing up the cement trucks for that wall. Also gone were conservative dreams of defunding Planned Parenthood and punishing sanctuary cities that don’t comply with federal immigration law; the White House caved on demands for both.

Despite the setbacks, Trump tried to project a victory even as his own party took greater control of international affairs, typically the President’s realm. The measure doubles the number of visas for workers from abroad, adds another 2,500 visas for Afghans who helped the U.S. military and sets aside \$100 million to fight Russia’s influence operations—all of which may be overshadowed by 140-character tirades once Trump learns about the pet projects and special provisions tucked into the bill. “Obviously, I wish he’d think twice before he tweeted,” said Senator John McCain, the Arizona Republican who led the charge to add to the Pentagon’s AmEx. Some officials dodged the President in the hallways, opting to stick to the West Wing’s second floor where he seldom wanders.

This spending bill only gets Washington to the start of October. Then, White House officials say, they can take up the ideas again. Maybe, mused one, Trump might acquaint himself with those “archaic” processes of Washington that allowed a bipartisan group of lawmakers at the Capitol to outmaneuver him. After all, funding the massive government in concert with Congress is far tougher than issuing an ultimatum. Chuckled one aide to Senate Democrats: just wait until the Supreme Court hands him his first defeat. —*With reporting by SAM FRIZELL and ZEKE J. MILLER*



TICKER

Walter Scott killer pleads guilty

A white former South Carolina police officer pleaded guilty to civil rights violations for the fatal shooting of Walter Scott, an unarmed black man, in 2015. Michael Slager’s state murder trial collapsed with a hung jury last year, but he now faces a life sentence. The news came the same week a white police officer in Dallas was dismissed from the force over the fatal shooting of a black 15-year-old. Roy Oliver fired his rifle into a car, killing Jordan Edwards. The teenager’s family now wants Oliver charged with murder.

U.S. issues travel alert for Europe

The U.S. State Department issued a summer-long travel alert for Europe, warning citizens of “the continued threat of terrorist attacks” after recent incidents in the U.K., France and Sweden. Al-Qaeda and ISIS have the “ability to plan and execute terrorist attacks” in Europe, it said.

Eminem sues New Zealand party

Eminem is suing New Zealand’s ruling National Party over music used in a 2014 campaign ad. Eight Mile Style, a publishing group representing the rapper, alleges that the theme used in the ad—titled “Eminem Esque”—was too close to Eminem’s song “Lose Yourself.”

CRIME

Where pirates still roam the seas

Incidents of piracy at sea in West Africa almost doubled last year, according to a new report by Oceans Beyond Piracy (OBP). Here, three of the world’s piracy hot spots:



The Aris 13 was hijacked off Somalia in March

NIGERIA

The spring of 2016 saw a spike in attacks off Nigeria, linked to militant activity. The OBP recorded 18 kidnapping assaults on merchant vessels between March and May, while some 96 sailors were abducted.



SOMALIA

Attacks off the Horn of Africa have decreased since 2011, but the OBP warns of a looming resurgence due to “decreased vigilance.” In March, Somali pirates seized an oil tanker, the first major hijacking there in five years.



SULU AND CELEBES SEAS

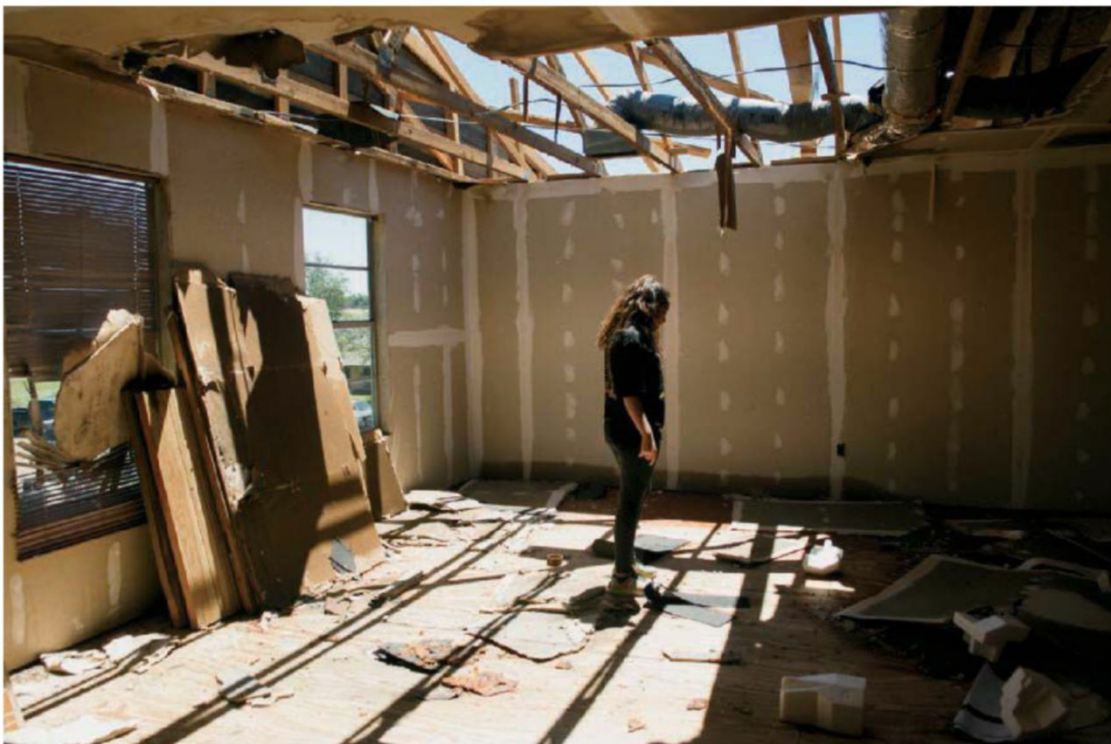
Piracy across Asia fell overall in 2016, but kidnappings rose in the waters between Indonesia, Malaysia and the Philippines, where the al-Qaeda-linked group Abu Sayyaf is active. Merchant ships and tourist yachts are now at risk.



DIGITS

9,932

Number of government workers fired in Tanzania on April 28 for forging academic records; the country is trying to stamp out corruption among its 550,000 civil servants



SPRING STORMS Stephanie Quezada looks at the damage in her father's church in Canton, Texas, on April 30 as severe storms tore through the South and Midwest over the weekend, claiming more than 15 lives and injuring dozens. The storms left a trail of devastation in Texas, Mississippi and Arkansas, flattening homes, cutting power lines and causing at least five tornadoes. *Photograph by Sarah A. Miller—Tyler Morning Telegraph/AP*

WORLD

Changing the laws that let rapists wed victims

ON APRIL 23, JORDAN'S CABINET RE-voked a law that allows rapists to avoid jail terms if they marry their victims. Parliament is due to vote on ratifying the change in May, the latest move in the Middle East against similar laws:

THE LOGIC Between 2010 and 2013, 159 rapists in Jordan took advantage of the law, which was cast as the lesser evil in brutally patriarchal societies. Supporters argued that marriage protected the victims' reputation and prevented "honor killings."

REFORMS WON Public outrage has led to change: Morocco scrapped its version of the law following the suicide of a 16-year-old who was forced to marry her rapist in 2012. In 2016, mass protests led Turkey to withdraw a bill



▲
Artist Mirelle Honein and nonprofit Abaad campaigned against Lebanon's law on rape by hanging wedding dresses on nooses in Beirut

that would pardon men convicted of sex with underage girls if they married.

SLOW CHANGE At least six countries in the region, including Tunisia, Libya, and Lebanon, retain the loophole, a legacy of the French colonial era. Activists say nations must be pressured to abolish these kinds of patriarchal customs.

—TARA JOHN

DATA

WIND POWER ON THE RISE

More than 54 gigawatts of wind-power capacity was installed globally in 2016, according to the Global Wind Energy Council, with turbines now in more than 90 countries. Here, a sample of the 10 countries that installed the most capacity last year, and how much annual power demand they meet by wind:

1
China
168,732 MW
(4% of total power)

2
U.S.
82,184 MW
(5.5% of total power)

4
India
28,700 MW
(9.1% of total power)

7
Turkey
6,081 MW
(7.3% of total power)

8
The Netherlands
4,328 MW
(8.9% of total power)





TICKER

YouTubers lose access to kids

Mike and Heather Martin, creators of YouTube channel DaddyOFive, lost custody of two of their five children after posting clips online featuring controversial “pranks” on their kids. The children’s biological mother won emergency custody.

Kabul bombing kills at least 8

A suicide bombing a block away from the U.S. embassy in Kabul killed at least eight Afghan civilians and wounded three U.S. soldiers. An ISIS affiliate claimed responsibility while the Taliban announced a spring offensive vowing “complex martyrdom attacks.”

Healthy school lunches at risk

U.S. Agriculture Secretary Sonny Perdue says he will roll back part of a healthy school-lunch initiative started by former First Lady Michelle Obama. Restrictions on salt will be weakened, and schools in certain states will be allowed to serve fewer whole grains.

Merkel condemns Chechen gay purge

German Chancellor Angela Merkel has urged Russian President Vladimir Putin to ensure the safety of LGBT people across the region following reports of gay men being persecuted in Chechnya.

THE RISK REPORT

Venezuela nears a tipping point, and a violent endgame

By Ian Bremmer

IT’S EASY TO SEE WHY HUGE NUMBERS OF furious Venezuelans have hit the streets in recent weeks. Years of mismanagement have left the country’s oil-export-dependent economy in a shambles. To appease the angry poor, President Nicolás Maduro announced a 60% increase in the minimum wage on May 1. That won’t reverse the decline of a country where production is in free fall, inflation is in the triple digits and hunger is now a common problem. It’s hard to find time for work while standing in line for the few remaining staples most of the public can afford.

The latest protests, and government response to them, have pushed Venezuela closer to the brink of collapse. Demonstrations have turned violent, with both protesters and police fueling the fire. There have been deaths, though there are few reliable estimates of how many. Riots have erupted even in working-class Caracas neighborhoods that have been loyal supporters of Maduro and his mentor, the late Hugo Chávez. These people are hungry too, and their continuing loyalty to the

government can’t be taken for granted.

The nation’s political structure is also at risk. Maduro has effectively shut down the opposition-controlled national assembly and banned opposition leader Henrique Capriles from seeking office for 15 years. A bid by Pope Francis to broker a deal has gone nowhere.

In the past, the Venezuelan government’s main advantages were the strength of its grip on institutions of power, particularly the courts, and the inability of a fractious opposition to unite behind a single idea or candidate. Now that dominance of institutions gives the government full responsibility for a country close to a breakdown, and the opposition is united in desperation. Venezuela’s economy isn’t going to get better. The price of oil won’t move anywhere near the level that can keep this boat afloat anytime soon, and the government is running out of gimmicks.

Maduro remains in power because the leftist Chavista movement has remained almost entirely united around the man Chávez anointed his successor. The police have kept the opposition contained, with help from state-backed gangs. The President hasn’t yet had to call in the army, which may not prove loyal enough to open fire on desperate civilians. That would prove the decisive moment. If the military becomes Maduro’s last option, he’s probably finished. □



A protester in Caracas rioted against the Maduro government in April

Milestones

DIED

Swiss climber **Ueli Steck**, who set several Alpine records, while preparing to climb Mount Everest, at 40.

> Author **Robert M. Pirsig**, who wrote the philosophical novel *Zen and the Art of Motorcycle Maintenance*, at 88.

> **Jean Stein**, known for her pioneering oral histories including 1982's *Edie: American Girl*, at 83.

DECLARED

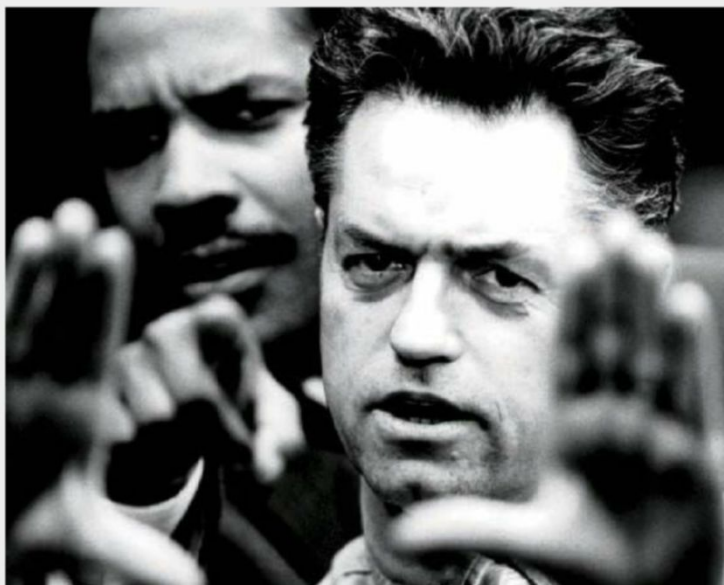
A form of bankruptcy by **Puerto Rico**, which owes creditors some \$73 billion. Governor Ricardo Rosselló requested bankruptcy protection to restructure the U.S. territory's debts in court.

RESIGNED

Bill Shine, as co-president of Fox News, following the dramatic ousters of host Bill O'Reilly and chief executive Roger Ailes amid allegations of sexual harassment.

SIGNED

An agreement between the **Writers Guild of America** and movie and TV studios on May 2, averting a strike at the last moment.



Demme (seen here in 1993) won his first and only Oscar for directing The Silence of the Lambs

DIED

Jonathan Demme Iconic filmmaker

THERE ARE PLENTY OF MODERN-DAY DIRECTORS WHO ARE COOL, as Jonathan Demme was, and some who perhaps have as much heart. But no one else has shown such perfectly balanced proportions of both.

In obvious ways and in subtle ones, Demme, who died on April 26 at age 73, approached every project with an unapologetically liberal bent and, even more important, with supreme compassion for the off-kilter beauty of everyday Americans. You can see that in movies like 1993's *Philadelphia*, one of the first Hollywood films to deal openly with AIDS and homophobia, and 1977's *Handle With Care*, about a group of people in small-town Nebraska whose lives intertwine in a kind of rambunctious mess. Demme created characters who take chances, who define themselves two and three times over—like Lulu (Melanie Griffith) in 1986's *Something Wild*, a hot ticket in a flapper's bob who kidnaps straitlaced banker Jeff Daniels, whisking him off on a crime spree. His career was a kind of coffee shop where everyone could come together and find something to talk about, or laugh about.

Sure, we have only one life to live. But even though we're fond of telling ourselves that life is short, in reality—if we're lucky enough to live a normal life span—it's actually quite long, or at least capacious. Demme's films, at their best, assured us that there was always room for more—more wildness, more heartbreak, more work, more joy, more love. He was unfailingly generous with us, his audience, and he sought to bring us closer rather than divide us. Maybe that's why it hurts so much to lose him. —STEPHANIE ZACHAREK

RETIRED

Dale Earnhardt Jr.

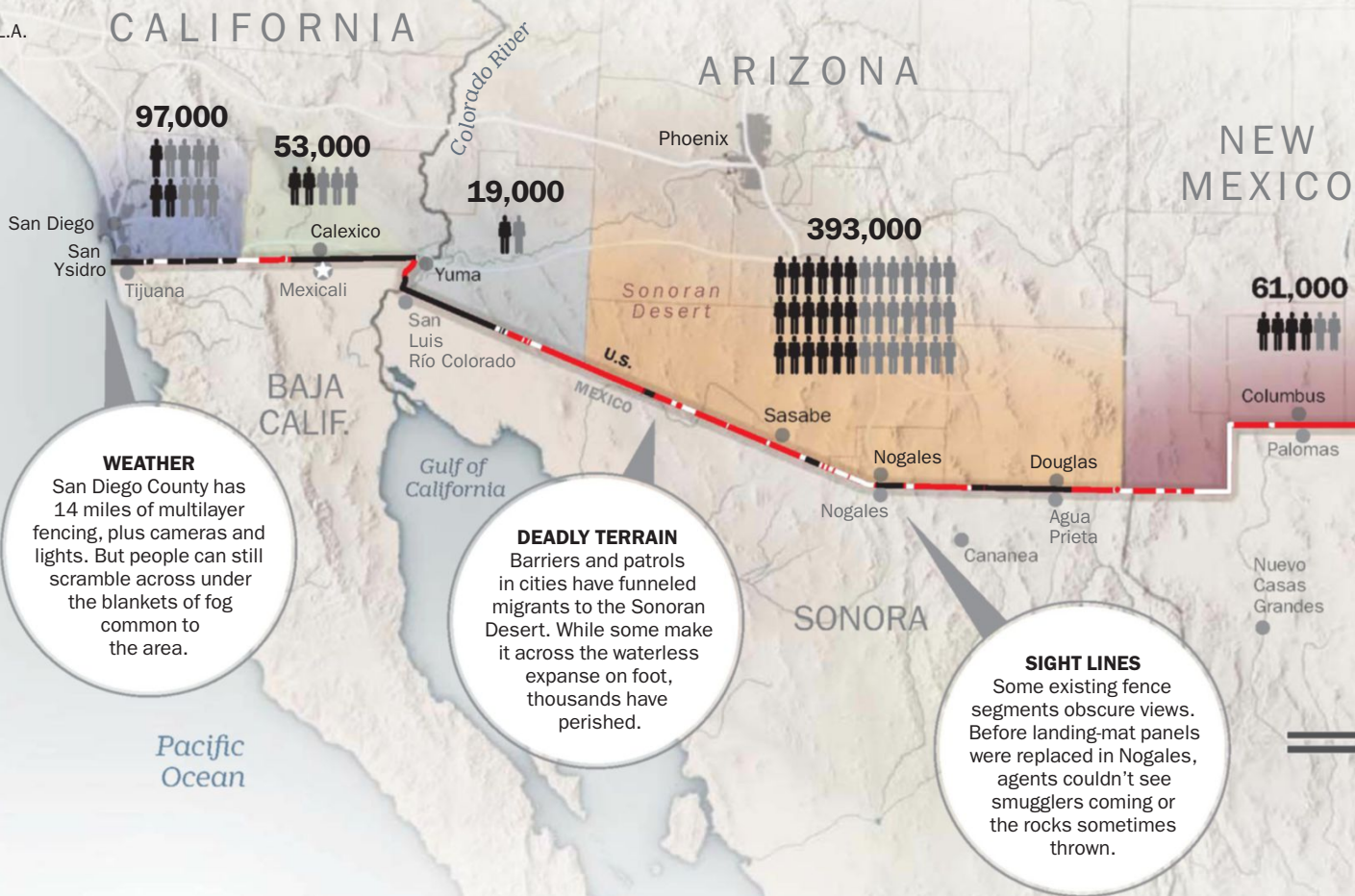
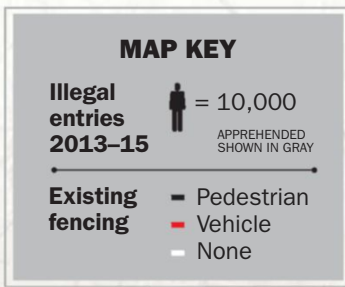
HE NEVER WON HIS sport's top title. But the championship drought did nothing to thwart the love NASCAR fans had for Dale Earnhardt Jr., who announced on April 25 that he's retiring from racing after this season. He's won the Most Popular Driver Award for 14 years running. As the son of the legendary Dale Earnhardt, he both inherited his fame and earned it. In 2001, he won a race at Daytona five months after his dad died in a crash there. With his down-home Southern drawl, Earnhardt Jr. never lost his everyman vibe. NASCAR attendance and ratings have slumped, and the sport can ill afford to lose its biggest draw. Junior, however, has pledged to stay involved in auto racing. NASCAR needs him, even out of the driver's seat.

—SEAN GREGORY

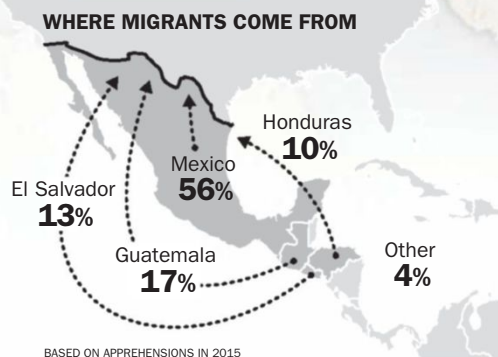
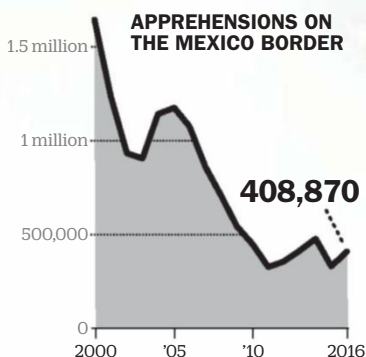


Barriers to a border wall

ALTHOUGH THE LATEST SPENDING BILL DID NOT INCLUDE FUNDS FOR IT, President Donald Trump is not backing down from his pledge to build a nearly 2,000-mile wall along the Mexican border. Designs are being solicited, and construction of prototype barriers is scheduled to begin in San Diego this summer. But fulfilling Trump's signature campaign promise won't be easy. Mexico says it won't pay, Democrats are opposed, and even GOP allies suggest a wall spanning the full border is unrealistic. Here are some other challenges facing the project:



Checking the flow



MAINTAINING THE FENCES

\$784

Average cost to repair each breach

9,287

Number of breaches from 2010 to '15

\$2.3 billion

Total fencing costs from 2007 to '15

Current barriers

The U.S. first began erecting physical fencing in 1990, though most was built beginning in 2006. Today roughly one-third of the Southern border features barricades of some type:



BOLLARD FENCE

Constructed of upright posts embedded in the ground, these barriers are designed to deter mass crossings.

STEEL MESH

This modern style of fencing is double-layered, which makes it harder for border crossers to cut through it with bolt or pipe cutters.

LANDING MAT

Made from Army-surplus carbon steel laid down for helicopters in the Vietnam War, it's one of the oldest types of barriers used.

NORMANDY

These crisscrossed posts are meant to impede vehicles. But smugglers have driven over them by laying down wooden ramps.

EROSION AND DRAINAGE ISSUES

Border towns have flooded when fencing hampered water flow. Outside El Paso, accumulated debris and sand reduced the barrier's height by 2 ft.

A RIVER RUNS THROUGH IT

A 1970 treaty with Mexico stipulates that structures should not disrupt the natural flow of the Rio Grande, whose winding path makes construction difficult.

The entire border spans 1,991 miles—that's **nine times the distance** from Earth to the International Space Station



TIME GRAPHIC BY EMILY BARONE AND LON TWEETEN

LAND RIGHTS

Much of the Texas border is private ranchland. Of hundreds of lawsuits filed over parcels taken for the Secure Fence Act of 2006, a fifth are still outstanding.

DISRUPTING WILDLIFE

Big Bend National Park is known for its biodiversity. Animals here would suffer if a wall hindered migration routes or access to food and water.

THE PROTOTYPES

4 to 8

Number of designs to be selected for prototypes

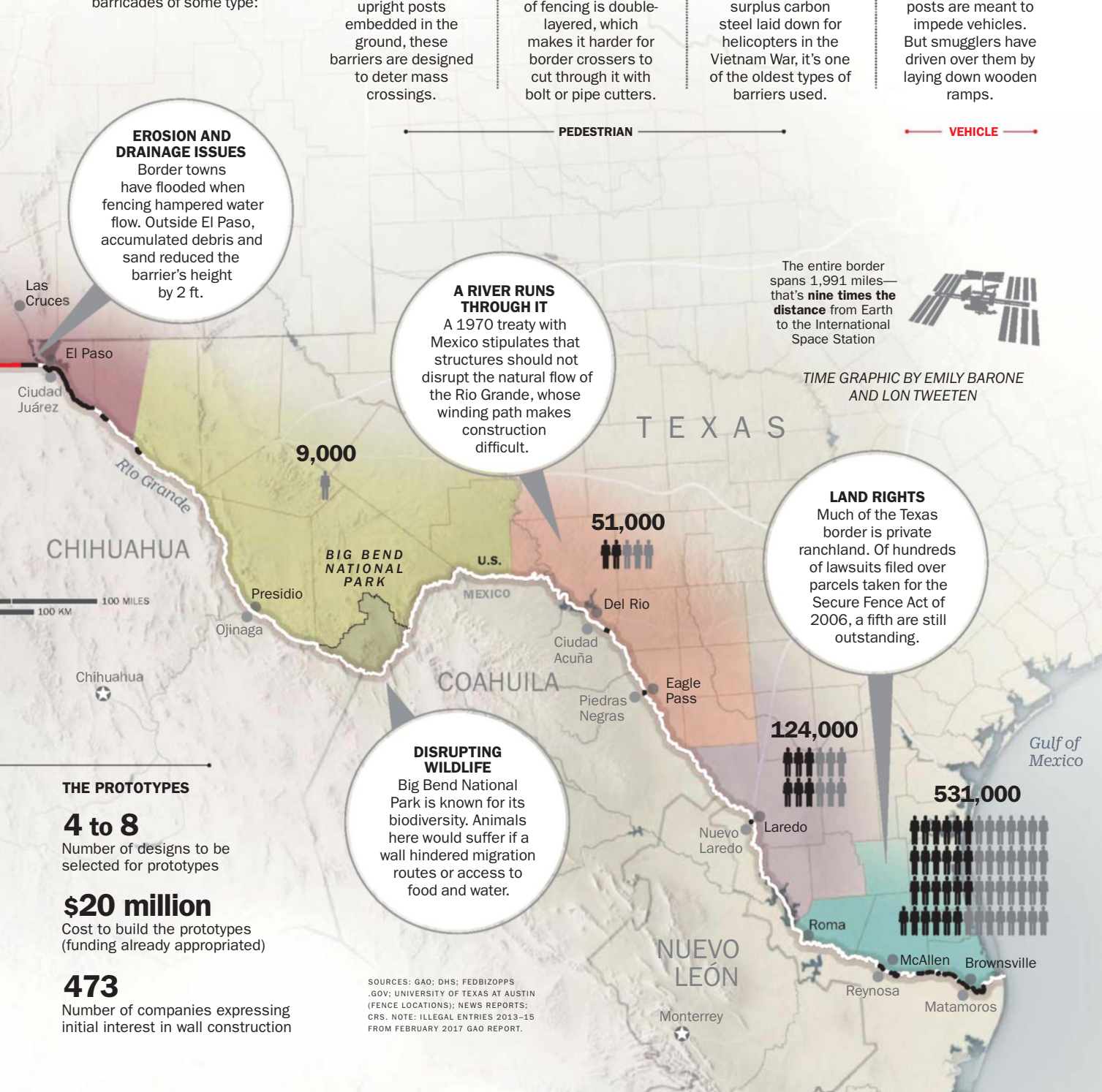
\$20 million

Cost to build the prototypes (funding already appropriated)

473

Number of companies expressing initial interest in wall construction

SOURCES: GAO; DHS; FEDBIZOPPS.GOV; UNIVERSITY OF TEXAS AT AUSTIN (FENCE LOCATIONS); NEWS REPORTS; CRS. NOTE: ILLEGAL ENTRIES 2013–15 FROM FEBRUARY 2017 GAO REPORT.





LightBox

Day of devotion

Kashmiri Muslims pray as a holy relic—a whisker believed to be from the beard of the Prophet Muhammad—is displayed at the Hazratbal shrine in Srinagar, India, on April 28. On 10 occasions each year, thousands of Muslim faithful throng the shrine to pray and catch a glimpse of the relic.

Photograph by Yawar Nazir—
Getty Images

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The View

'UNICORNS HAVE TRAVELED A LONG WAY TO BECOME DRINKS.' —PAGE 27

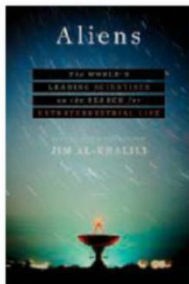


A new book posits that alien encounters would be far more benign than they appear in the movies; Arrival, above, is more realistic than most

SCIENCE

Why aliens would (probably) come in peace

By Sarah Begley



WHEN THE MARTIANS FIRST LAND on Earth in the 1996 sci-fi comedy *Mars Attacks!*, for a moment it appears all will be fine. “We come in peace,” says their leader, as the music swells and a dove soars overhead. Seconds later the Martian pulls out a laser gun and opens fire on a crowd of human onlookers. Yet another blockbuster alien invasion has begun.

That’s Hollywood, of course. But the melodrama underscores one of humanity’s most widely held fears: that if and when we do encounter extraterrestrial beings, they will wreak all kinds of havoc, much as they do in the movies.

Or will they? For his new book, *Aliens: The World’s Leading Scientists on the Search for Extraterrestrial Life*, quantum physicist Jim Al-Khalili asked a series of experts to explore how humans might actually make contact with aliens. The possibility is

not as far-fetched as it once seemed: since NASA launched its Kepler mission in 2009, researchers have discovered thousands of new planets and “revolutionized our concept of how many habitable worlds could exist,” writes astrobiologist Nathalie Cabrol in one of the book’s essays.

But while Hollywood suggests we should expect to battle their inhabitants, science tells a different story. Here, five popular alien myths that *Aliens* debunks.

MYTH NO. 1

Aliens would eat us

Movies like *The Blob* and *Critters* imagine aliens harvesting humans for food, an unpleasant prospect. But it doesn’t track with the science of nutrition, writes astrobiologist Lewis Dartnell. In order for aliens to get nourishment from eating us, their bodies would have to be capable of

processing our molecules (like amino acids and sugars). And that requires having a similar biochemistry—a long shot for a species that hails from a different world.

MYTH NO. 2

Aliens would breed with us

Both of this summer's extraterrestrial blockbusters, *Alien: Covenant* and *Guardians of the Galaxy Vol. 2*, involve human-alien hybrids. But given that we can't even reproduce with our nearest evolutionary relative, the chimpanzee, it's "overwhelmingly improbable" we could do so with aliens, according to Dartnell.

MYTH NO. 3

Aliens would look like us

Human evolution depended on so many unique and unpredictable factors, it's near impossible that an extraterrestrial species would have human-like features, like the aliens in *The Day the Earth Stood Still* and *Star Trek*. It's far likelier, writes neuroscientist Anil Seth, that they'd be as different as the octopus, "our very own terrestrial alien," which has a high level of intelligence, a decentralized nervous system and an alternative style of consciousness.

MYTH NO. 4

Aliens would be "living" creatures

Even restrained films like *Arrival* get this one wrong, according to some scientists. Should aliens contact us, cosmologist Martin Rees believes we will hear not from fellow organic creatures, but from the robots they produced, who can, in theory, live forever.

MYTH NO. 5

Aliens would steal our water and metal

The aliens in *Independence Day* famously arrive to strip Earth of its resources. But again, that logic doesn't add up, writes Dartnell. Most of our metal is in the Earth's core, not its crust; asteroids would be far better targets for mining. And icy moons, like Jupiter's Europa, would be easier places to stock up on water. They're uninhabited, and they don't have Earth's strong gravitational pull.

So if aliens aren't interested in harvesting our lands or our bodies, why would they make contact? Dartnell suspects a purer motive: curiosity. "If aliens did come to Earth," he writes, it would probably be "as researchers: biologists, anthropologists, linguists, keen to understand the peculiar workings of life on Earth, to meet humanity and learn of our art, music, culture, languages, philosophies and religions."

Presumably, we would hide our alien movies. □

VERBATIM

'I used to get offended by things that were said to me, or how I was seen. Now I educate. If I get pissed off, I'll educate in a sassy way.'

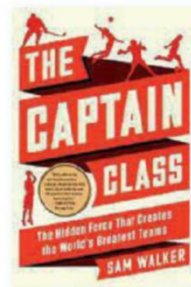
PRIYANKA CHOPRA, actor, on dealing with cultural insensitivity



BOOK IN BRIEF

The hidden stars of champion teams

WHEN WE THINK ABOUT THE athletes who make their teams great, we tend to think about high-scoring hot-shots. But in his new book *The Captain Class*, Sam Walker argues that while star players help, the true hallmark of a top-tier team is a captain who works hard behind the scenes. Consider the ultra-dominant 1996–99 U.S. women's soccer team. You may remember the "telegenic goal-scoring heroines Mia Hamm, Julie Foudy and Brandi Chastain," Walker writes, but the force behind their 94% win-or-draw rate came from captain Carla Overbeck, who passed the ball whenever she got it, rarely left the pitch, outlasted and chastised her teammates in drills—and carried their bags to their hotel rooms. Overbeck's hard work, Walker writes, "allowed her to amass a form of currency she could spend however she saw fit," which she used "to ride her teammates when they needed to be woken up." And that, he concludes, is what drove them to greatness. —SARAH BEGLEY



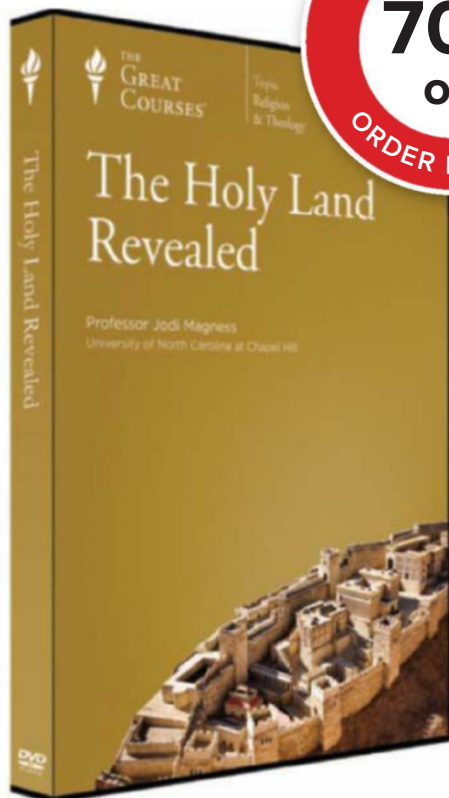
CHARTOON

Early social-media crusades



JOHN ATKINSON, WRONG HANDS

CHOPRA: GETTY IMAGES



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22. Galilee—Setting of Jesus's Life and Ministry
23. Synagogues in the Time of Jesus
24. Sites of the Trial and Final Hours of Jesus
25. Early Jewish Tombs in Jerusalem
26. Monumental Tombs in the Time of Jesus
27. The Burials of Jesus and James
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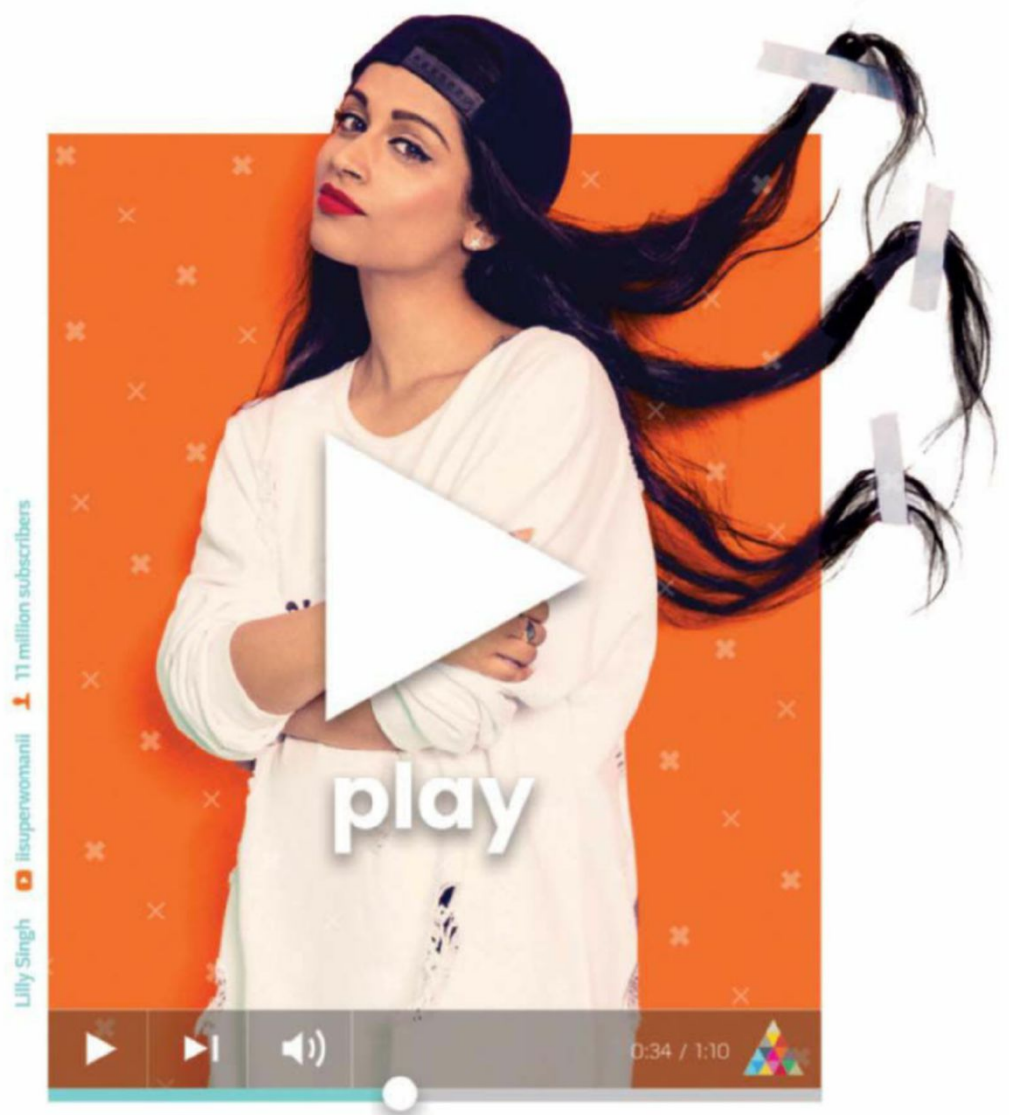
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BIG IDEA

Flying jet taxis

Imagine hailing a ride with your phone and having an electric plane arrive to whisk you away. That's the vision of German startup Lilium, which is developing a five-seat electric jet that can take off and land vertically, enabling it to serve some of the world's densest cities. The key is a series of engines that can rotate 90 degrees; this allows the jets to reach horizontal flying speeds of up to 186 m.p.h. (faster than many helicopters) and then descend straight down once they've reached their destination. But the jets are far from being commercially ready: Lilium only just completed its first set of test flights in Bavaria, using a two-seat prototype. —Julia Zorthian



HISTORY

The surprising evolution of Cinco de Mayo

TO MANY AMERICANS, CINCO DE MAYO IS A day for eating Mexican food and imbibing liberally. But the real history is far more politically charged.

It started in the 1860s. France wanted to expand its empire into Mexico, and Napoleon III ordered his troops to head toward Mexico City to overthrow Mexico's democratically elected President Benito Juárez, while Abraham Lincoln was preoccupied with the Civil War. The hyperorganized French forces were widely expected to triumph, leading to a new Mexican monarchy that would side with the Confederacy.

But then, on May 5, 1862, the Mexican forces defeated the French in the Battle of Puebla. That surprise victory galvanized Latinos who had come north during the gold rush, leading to spontaneous celebra-

tions, says David E. Hayes-Bautista, author of *El Cinco de Mayo: An American Tradition*. (The first took place in Tuolumne County in California.) Soon they started a network of organizations to support the fight against slavery both in Mexico and the U.S.

But in the 1930s, though, as the Civil War became a more distant memory, Cinco de Mayo's significance as a civil rights holiday started to fall by the wayside. By the 1980s and 1990s the number of Hispanic consumers had risen dramatically, and marketers—especially within the spirits industry—seized the moment. They made the holiday ubiquitous by turning it into a general celebration of Mexican-American culture, and the parties rage on today. —OLIVIA B. WAXMAN

► For more on these stories, visit time.com/history

DATA
THIS
JUST IN

A roundup of new and noteworthy insights from the week's most talked-about studies:

1

YOU CAN WILL YOURSELF TO OVERCOME HEARTBREAK

A study published in the *Journal of Neuroscience* found that telling people who recently went through breakups that a placebo nasal spray would make them less sad while viewing photos of their exes did in fact dull their sadness, according to brain scans—suggesting that just believing in heartbreak relief has benefits.

2

ADJUSTING YOUR THERMOSTAT MIGHT BOOST YOUR METABOLISM

A report in *Building Research & Information* found that varying living temperatures between mildly cool and warm can combat obesity by making inhabitants burn more energy and improving overall metabolic health.

3

TEENS SHOULDN'T START SCHOOL BEFORE 8:30 A.M.

The American Academy of Sleep Medicine officially took the stance that middle and high schools should begin no earlier than 8:30 a.m. so that teens—who are predisposed to staying up later—can gain sleep more and focus better. —J.Z.

NUTRITION

Surprising news about salt

By Mandy Oaklander

FINALLY, SOME RELIEF FOR PEOPLE WHO EAT TOO MUCH SALT (89% OF AMERICANS, TO BE EXACT): A NEW study found that healthy people who reported eating more sodium had no higher blood pressure than those who ate less—suggesting the risks of sodium for healthy people may be somewhat overblown. More research is needed before health experts agree on how much salt is safe. But the news is fortunate, given how easy it is to ingest huge amounts, especially dining out. In another recent study, people walking out of fast-food restaurants were asked to guess how much sodium they had just eaten. The average estimate was 650% too low. Sodium shows up where you least expect it: in food additives and as a preservative to extend shelf life. Even foods that don't taste salty—like pastries, doughnuts and bread—can speed you toward the recommended daily cap of 2,300 mg.



REDUCED-FAT BLUEBERRY MUFFIN
540 MG SODIUM

Just one muffin can pack **23% of your recommended daily sodium limit**. Many baked goods contain leavening agents with sodium—like baking soda and baking powder—as well as sodium-based additives.



MILK SHAKE
1,050 MG SODIUM

It's dessert, but a milk shake can be surprisingly rich in sodium as well as sugar. With a large-size Oreo chocolate shake from Sonic, you'd be sipping **almost half a day's worth** of sodium.



FLOUR TORTILLA
600 MG SODIUM

You're more than **a quarter of the way to your daily sodium limit** with a tortilla from Chipotle, before you even put anything in it. Add white rice—let alone other toppings—and you're almost to 1,000 mg.



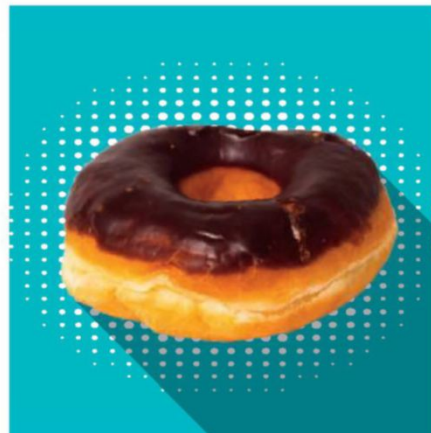
MINESTRONE SOUP
1,600 MG SODIUM

Soup may seem healthy, but a large 16-oz. bowl of classic minestrone from Hale and Hearty Soups has **about 70% of your daily salt allotment**. Chicken stock, a common soup base, is chock-full of sodium.



CEDAR-GRILLED LEMON CHICKEN
2,440 MG SODIUM

Even though it's on Applebee's "lighter fare" menu, this dish **exceeds the upper daily limit** for sodium. Grilled chicken is naturally low in sodium, but when you're dining out, you can't control the seasonings.



CHOCOLATE-FROSTED DOUGHNUT
340 MG SODIUM

Even something as sweet as a doughnut can pack **14% of your recommended daily sodium**. Treats sold at restaurants often have sodium-filled ingredients designed to improve consistency and shelf life.

TRENDS

Purple coffee, rainbow toast and the politics of unicorns

By Nate Hopper

WHENEVER I'M FEELING DOWN ABOUT the world, I drink poison. Not quick-acting poison. The stuff with a longer half-life: sugary delights that get my heart thrumming. America seems to do the same. For five days, starting on April 19, the country gorged half a meal of calories in one limited-release Starbucks candy drink: the Unicorn Frappuccino. It was a sensation within a larger sensation of unicorniness: pastel streaks known as “unicorn hair”; ice cream branded “unicorn food”; and, coming to New York, a store for the species. What's going on? The story is a thoroughly modern-America blend.

It may have started with food stylist Adeline Waugh, 27, who begot a “unicorn food” craze when she tinted healthy toast with natural ingredients (beetroot, chlorophyll) to make it more Instagram-friendly. As Waugh told the *New York Times*, “The entire point ... was to show people that healthy food can be fun and exciting—especially to give to your kids.” Soon, though, the technique spread to cakes and hot chocolate covered in Lucky Charms.

Waugh had another impulse: “Sometimes with everything going on in the world, people just want to play with their food or look at pictures of food that is brightly colored and happy and fun.”

The Unicorn Frappuccino debuted during a brief approval spike for President Donald Trump, which has since settled back into the trough. Meanwhile, Americans wondered if nuclear war with North Korea would become inevitable, watched one of their most powerful TV anchors get fired amid sexual-harassment allegations and found out they might need to endure another health care debate. Into this all too real atmosphere, the mythical creature marched, giving adherents rare joy and bragging rights again.

Starbucks picked up on the social-media buzz. It also had broader

concerns. Over the past year its stock has remained relatively stagnant—at least in part because of its recent politicking. After Trump debuted his initial travel ban in January, then CEO Howard Schultz announced a plan “to hire 10,000 [refugees] over five years” across 75 countries. Protesters threatened boycotts. Customer support dropped. Investors rebelled. One, the National Center for Public Policy Research, a libertarian think tank and shareholder, declared: “Coffee has no political allegiance.” (The organization told *TIME* it was unavailable to comment on the politics of unicorns.) While it's doubtful the beverage was a direct reaction to all this, once it arrived, Starbucks' stock trended toward the stars.

UNICORNS HAVE TRAVELED a long way to become drinks. According to 2009's *The Natural History of Unicorns* by geographer Chris Lavers, they first entered Western lore by way of India around 398 B.C., when Greece's Ctesius described “certain wild asses which are as large as horses, and larger” and possess a sharp horn with “a vivid crimson” tip. They could only be captured by “many men and horses.” It is possible that Ctesius had seen an animal similar to a rhino.

Through a series of mistranslations, the unicorn's tale entwined with that of the Bible. The animal came to symbolize Christ—and young women's chastity. No longer could only “many men” tame the beasts. Instead, as Saint Isidore of Seville wrote, “If a virgin girl ... bares her breast to it”—or, per other translations, her “lap”—“all of its fierceness will cease.” Today, as toys and cartoons, unicorns still represent purity, but also convey autonomy to young girls: magical creatures with abilities others can't possess.

This all seems fittingly sweet—and sour: a social-media entrepreneur begins a trend to get kids to eat healthily. Followers douse it in sugar. A corporation criticized for its progressive politics joins the movement apolitically; a sad America guzzles more sugar into warless bliss. The item becomes a status token; it infantilizes those who bought it. And everything is tied up in a European mistranslation of what is perhaps a gray, wart-covered herbivore that seeks to empower young women, who maybe shouldn't get hooked on the caffeine-laced coffee chain yet. It's a head rush. As soon as the Unicorn Frapp's 15 minutes were up, a Starbucks barista concocted another complex metaphor as beverage: the Mermaid Frappuccino. □



Alexa takes the stand: Listening devices raise privacy issues

By Haley Sweetland Edwards

WHEN VICTOR COLLINS WAS FOUND DEAD, FLOATING faceup in his friend James Bates' hot tub in Bentonville, Ark., one chilly morning in November 2015, police were quick to suspect foul play. Broken glass littered the patio, and blood was splattered on a brown vinyl pool cover nearby. But in a subsequent investigation, which led police to indict Bates, 32, for Collins' murder, some of the most crucial evidence was gleaned not only from the crime scene but from an array of Internet-connected devices in Bates' home.

Data from his "smart" utility meter, for example, indicated that someone had used 140 gal. of water between 1 a.m. and 3 a.m., a detail that seemed to confirm investigators' suspicions that the patio had been hosed down before they arrived. Records from Bates' iPhone 6s Plus, which required a pass-code or fingerprint to unlock, suggested he had made phone calls long after he told police he'd gone to sleep. And audio files captured by Bates' Echo, Amazon's popular personal assistant that answers to "Alexa," promised to offer police a rare window into Bates' living room the night Collins died.

The case, which goes to trial in July, marks the first time ever that data recorded by an Echo, or any other artificial intelligence-powered device, like Google's Home or Sam-

sung's smart TV, will be submitted as evidence in court. The move has alarmed tech analysts and privacy advocates nationwide. The issue is not only that these new devices are equipped with so-called smart microphones that, unless manually disabled, are always on, quietly listening for a "wake word," like "Alexa" or "Hey, Siri." It's also that these now

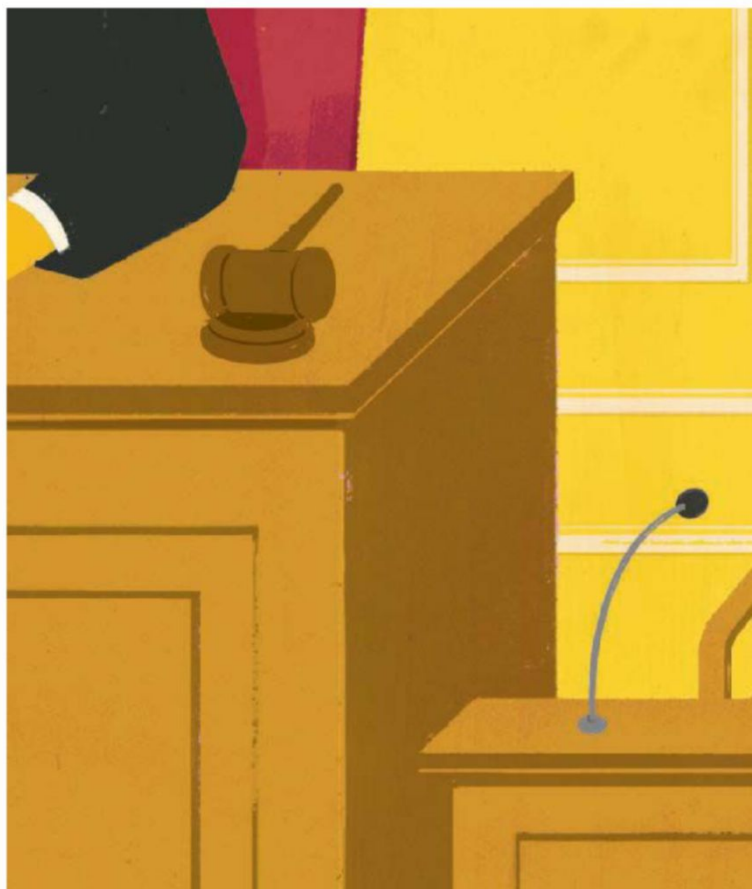
'We are living in an always on, always connected world. We are creating records that have never existed before.'

JOEL REIDENBERG, founding academic director of the Center on Law and Information Policy at Fordham University

ubiquitous microphones live in our most intimate spaces: in our living rooms and kitchens, on our bedside tables. In a world in which these personal assistants are always listening for our voices and recording our requests, have we given up on any expectation of privacy within our own homes?

Joel Reidenberg, a founding director of Fordham University's Center on Law and Information Policy, says the answer isn't straightforward. The explosion of these always listening gadgets has outpaced much of the existing legal precedent on privacy. "We are living in an always on, always connected world," he said. "We are creating records that have never existed before."

And we continue to charge ahead. Between mid-2015 and last December, Amazon sold 11 million Echo devices, according to Morgan Stanley, and in April the company introduced



a newer version. The Echo Look features a depth-sensing camera and LED lights, and is designed to perch in your bedroom, where it can best offer fashion advice. Last May, Google launched its Google Assistant, which is capable of two-way conversations, and Apple is expected to release its version, powered by Siri, later this year.

U.S. PRIVACY LAWS, as they have been interpreted over the past 40 years, offer no clear guidance for how to deal with these shiny new gadgets. The Fourth Amendment, along with a host of state and federal privacy statutes, has traditionally provided citizens with a powerful right to privacy within their own homes. But caveats loom. For example, the "third-party doctrine," the result of two Supreme Court cases in the 1970s, establishes that while Americans do indeed enjoy a "reasonable expectation of privacy" within their own homes, that changes if they share information with



anyone or anything that constitutes a “third party.” That means that if you dial a number on your phone or access a web page, you voluntarily offer that information to your phone company or Internet Service Provider, both third parties. In doing so, you relinquish any reasonable expectation of privacy.

“The pervasiveness of disclosures to third parties in an always connected world eviscerates the Fourth Amendment,” Reidenberg warns. “Because, of course, we are disclosing information to third parties all of the time.”

The issue has not gone unnoticed. In 2012, Supreme Court Justice Sonia Sotomayor wrote that the third-party doctrine may simply be “ill-suited to the digital age.” Other privacy advocates argue that in the context of devices, like the Echo, whose microphones are always on and that live within the walls of our homes, we ought to rethink the scope of privacy altogether. After all, our interactions with an Alexa or a Siri are in many

ways unprecedented. When we type something into a Google search, post a message on Facebook or agree to share our GPS location with a mapping app, we are usually actively interfacing with a screen. That feels different than asking Siri about the weather, or standing alone, half-dressed in our bedrooms, trying on clothes for Echo Look.

THE ISSUE IS further complicated by the nature of spoken interactions. If your iPhone mistakenly hears “Hey Siri” when you say “They seriously,” you did not intend to interact with a third party, much less to create a record of your conversation. But nonetheless, it’s there, transmitted and saved.

In July 2015, the Electronic Privacy Information Center, a research and advocacy group that has drawn support from both conservatives and liberals, pushed the U.S. Justice Department and Federal Trade Commission to weigh in on precisely this issue. “Americans do not expect that the devices in their homes will persistently record everything they say,” the group’s letter read. “It is unreasonable to expect consumers to monitor their every word in front of their home electronics. It is also genuinely creepy.” Lee Tien, a senior staff attorney at the Electronic Frontier Foundation, went one step further. When we think about privacy, he told TIME, it should not be in the context of hiding embarrassing or incriminating data. We should have a reasonable expectation of privacy within our own homes, he said, unless we actively choose to waive it. “People should have the freedom to choose what they share,” he said.

Many legal analysts and law-enforcement officials find themselves firmly on the other side of the debate. Voicing a search request to Alexa, they argue, is no different—legally or logically—from typing that same request into a search bar. There’s no good reason devices with microphones instead of keyboards shouldn’t be subject to the same rules. That’s perhaps especially true in the context of criminal justice. After all, if police present probable cause and receive a search warrant, they can often enter a suspect’s home, request phone records and access recent browser history. How is that any different than

‘It is unreasonable to expect consumers to monitor their every word in front of their home electronics. It is also genuinely creepy.’

ELECTRONIC PRIVACY INFORMATION CENTER, in a July 2015 letter to the U.S. Justice Department and the Federal Trade Commission

searching the audio collected by a digital appliance? “There is not a rational or legal reason that we shouldn’t be able to search that device,” Nathan Smith, the Bentonville County prosecutor, told reporters, referring to Bates’ Echo.

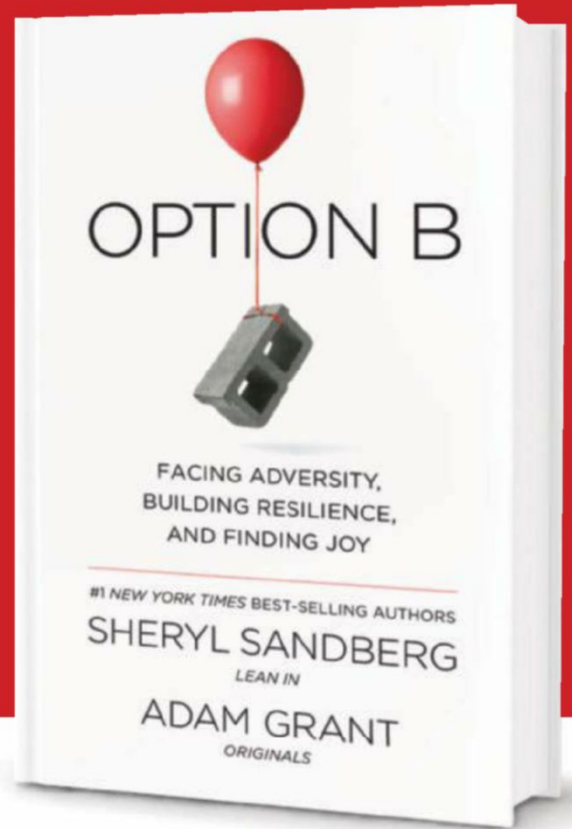
Indeed, there is already plenty of precedent for law-enforcement officials’ culling through precisely the kind of ultrapersonal digital records that, as Reidenberg pointed out, didn’t even exist five years ago. In February, for instance, police in Ohio strengthened a case against a man accused of arson and insurance fraud after the heart-rate data collected from his smart pacemaker appeared to contradict the story he’d told investigators. In April, police in Connecticut were able to indict a man for murdering his wife in part because data from her Fitbit showed that she was home, walking around, long after he claimed an intruder had killed her.

There are no pending court cases that promise to bring any clarity to this issue. Which is one reason the Bentonville case has drawn so much attention. When Smith first subpoenaed Bates’ Echo recordings in 2016, Amazon refused to comply, saying it would not “release customer information without a valid and binding legal demand properly served on us.” In February, the company hired a top First Amendment lawyer with 30 years’ experience and prepared for war. But then, in March, Bates’ lawyer released the records voluntarily, postponing the broader privacy dilemma a bit longer.

Meanwhile, Bentonville officials have spent the last two months sifting through Bates’ Echo records. They have not yet said what they found. But even if Alexa knows nothing more than the name of the song playing at the time of death, or who requested it, there’s something unsettling in calling her to the stand. □

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Option**B**



What does Trump see when he looks back in history? Mostly he sees ... Trump

By Jon Meacham

IT WAS VINTAGE RONALD REAGAN. ADDRESSING A fundraiser for the JFK Library in 1985, the 40th President mused about the mystery and magic of the White House. “Nothing is ever lost in that great house; some music plays on,” Reagan said to an audience that included Jacqueline Kennedy Onassis. “I have been told that late at night when the clouds are still and the moon is high, you can just about hear the sound of certain memories brushing by. You can almost hear, if you listen close, the whir of a wheelchair rolling by and the sound of a voice calling out, ‘And another thing, Eleanor!’ Turn down a hall and you can hear the brisk strut of a fellow saying, ‘Bully! Absolutely ripping!’ Walk softly now and you’re drawn to the soft notes of a piano and a brilliant gathering in the East Room, where a crowd surrounds a bright young President who is full of hope and laughter.”

They can’t help it, really: Presidents live and work in a house of history. They dwell with ghosts. Present power and the weight of the past are ambient realities of daily life in the presidency, and the two are intimately connected. Presidents look back seeking both inspiration for the future and sanction for the moment—and now even Donald Trump, perhaps the least historically minded man ever to reach the pinnacle of power, has fallen under the spell of what (and who) has come before. What’s revealing about a President’s sense of history is less about the history itself than about what that President’s perspective on the history tells us about him.

SO WHAT’S THE SIGNIFICANCE of Trump’s newfound Andrew Jackson fascination? That there was, in the President’s view, a Trump before there was the Trump. An unconventional tribune of the people—a “swashbuckler,” in Trump’s phrase—comes riding into Washington, upsetting elites and promising a new democratic age. The press and the established order are aghast but ultimately cowed into submission by the charismatic leader—a man who, despite all the critics and all the naysayers, has a “big heart” and a transformative personality. Presidents tend to see as they wish to be seen, and Trump wasted no time in hanging a Ralph Earl portrait of Jackson in the Oval Office, in paying homage to Jackson at the Hermitage in Nashville on Old Hickory’s 250th birthday and, most recently, in speculating that Jackson would somehow have averted the Civil War because of his devotion to the Union. (Whether Jackson would have renounced his slave-owning ways to defy secessionists was left unexplored and is in any event unknowable, since the seventh President died in 1845.) The intersection of the two thoughts—a fondness for Jackson and a belief, first expressed in

HIS STORY

Jackson is only the most prominent instance of Trump’s selective but illuminating use of history.

A belief that the Civil War could have been resolved by negotiation is not surprising since Trump, after all, believes himself to be the ultimate dealmaker.

TIME last summer, that the war Shelby Foote once called “the cross-roads of our being” could have been resolved by the right dealmaker—is not surprising when we remember that Trump, after all, believes himself just that kind of ultimate dealmaker.

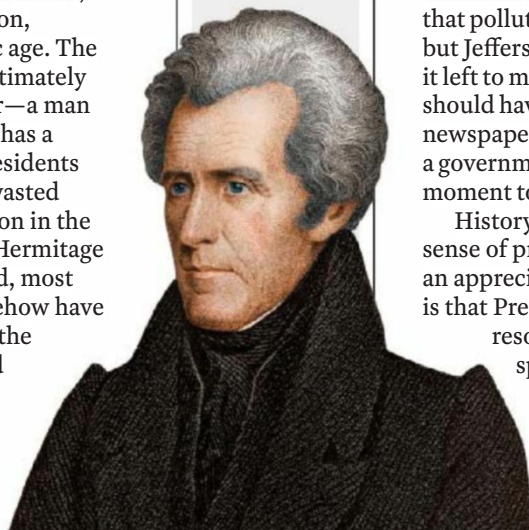
JACKSON IS ONLY the most prominent instance of Trump’s selective but illuminating use of history. Desperate for the approval of the present and of the future, the 45th President has also occasionally sought the approbation of the past. He has alluded to Henry Clay on the issue of protecting American trade and has felt the need to remind audiences that Abraham Lincoln was, like Trump, a Republican. (“Great President,” Trump remarked of Lincoln. “Most people don’t even know he was a Republican, right? Does anyone know? ... We have to build that up a little more. Let’s take an ad.”)

Not long ago he conscripted Thomas Jefferson into a diatribe against the press. “When the media lies to people, I will never, ever let them get away with it,” Trump said. “In fact, Thomas Jefferson said, ‘Nothing can [now] be believed which is seen in a newspaper.’ ‘Truth itself,’ he said, ‘becomes suspicious by being put into that polluted vehicle.’” Fair enough, but Jefferson also said this: “Were it left to me to decide whether we should have a government without newspapers, or newspapers without a government, I should not hesitate a moment to prefer the latter.”

History, like life, is complicated. A sense of proportion is essential, as is an appreciation of nuance. The danger is that President Trump, living in the

resonant house of which Reagan spoke, will hear only the notes he wishes to hear.

So here’s hoping that the incumbent will take the time to absorb the whole symphony. □

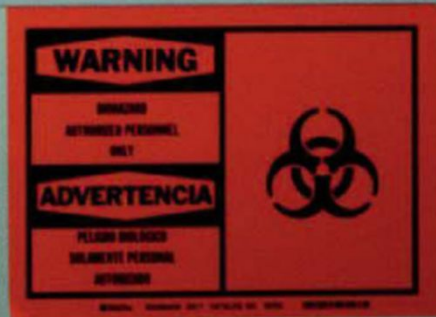


WARNING: THE NEXT GLOBAL SECURITY THREAT ISN'T WHAT YOU THINK



Health

ON A **HYPERCONNECTED PLANET** RIFE WITH
HYPERINFECTIOUS DISEASES, EXPERTS WARN WE AREN'T
READY TO KEEP AMERICA—AND THE WORLD—SAFE FROM
THE NEXT PANDEMIC **BY BRYAN WALSH**



*John Hackett
and Charles
Chiu handle Zika
samples at the
University of
California, San
Francisco*

PHOTOGRAPH BY CODY
PICKENS FOR TIME

Across China, the virus that could spark the next pandemic is already circulating. It's a bird flu called H7N9, and true to its name, it mostly infects poultry. Lately, however, it's started jumping from chickens to humans more readily—bad news, because the virus is a killer. During a recent spike, 88% of people infected got pneumonia, three-quarters ended up in intensive care with severe respiratory problems, and 41% died.

What H7N9 can't do—yet—is spread easily from person to person, but experts know that could change. The longer the virus spends in humans, the better the chance that it might mutate to become more contagious—and once that happens, it's only a matter of time before it hops a plane out of China and onto foreign soil, where it could spread through the air like wildfire.

From Ebola in West Africa to Zika in South America to MERS in the Middle East, dangerous outbreaks are on the rise around the world. The number of new diseases per decade has increased nearly fourfold over the past 60 years, and since 1980, the number of outbreaks per year has more than tripled.

Some recent outbreaks registered in the U.S. as no more than a blip in the news, while others, like Ebola, triggered an intense but temporary panic. And while a mutant bug that moves from chickens in China to humans in cities around the world may seem like something out of a Hollywood script, the danger the world faces from H7N9—and countless other pathogens with the potential to cause enormous harm—isn't science fiction. Rather, it's the highly plausible nightmare scenario that should be keeping the President up at night.

The U.S. Centers for Disease Control and Prevention (CDC) ranks H7N9 as the flu strain with the greatest potential to cause a pandemic—an infectious-disease outbreak that goes global. If a more contagious H7N9 were to be anywhere near as deadly as it is now, the death toll could be in the tens of millions.

"We are sitting on something big with H7N9," says Michael Osterholm, the di-

rector of the Center for Infectious Disease Research and Policy at the University of Minnesota and a co-author of the new book *Deadliest Enemy: Our War Against Killer Germs*. "Any one of these cases could trigger something big. By then it'd be way too late."

Too late because even as the scientific and international communities have begun to take the threat of pandemics more seriously, global health experts—including Bill Gates, World Health Organization director Dr. Margaret Chan and former CDC director Dr. Tom Frieden, to name just a few—warn that nowhere near enough is being done to prepare, leaving the U.S. scarily exposed. That's because the system for responding to infectious disease is broken. So broken that it recently prompted Gates and his wife Melinda to put their weight behind a major public-private initiative called the Coalition for Epidemic Preparedness Innovations (CEPI). The Gates Foundation alone will devote \$100 million over the next five years to CEPI, which will help speed the development of vaccines against known diseases, like MERS, while also investing in next-generation technologies that can counter future threats.

Since President Donald Trump took office, key government positions remain unfilled, including a new director for the CDC. The budget the President proposed in March would have slashed critical funding at the Department of Health and Human Services (HHS) by \$15.1 billion, including deep cuts to the National Institutes of Health (NIH), which underwrites more infectious-disease research than any other agency in the world. The budget for the State Department and

foreign aid—which power vital efforts to stop diseases overseas, where they usually originate—was set to be cut by 28%. Although a bipartisan congressional spending deal reached on April 30 blocked many of those cuts, the signals Trump has sent are worrying. "It's early days, but if we compare to what we've seen in the past, it raises some alarm bells," says Jeremy Youde, a global health expert at ANU College of Asia and the Pacific.

The consequences of a major pandemic would be world-changing. The 1918 flu pandemic killed 50 million to 100 million people—at the top end, more than the combined total casualties of World Wars I and II—and for a slew of reasons, humans are arguably more vulnerable today than they were 100 years ago. First of all, there are simply more of us. The number of people on the planet has doubled in the past 50 years, which means more humans to get infected and to infect others, especially in densely populated cities. Because people no longer stay in one place—nearly 4 billion trips were taken by air last year—neither do diseases. An infection in all but the most remote corner of the world can make its way to a major city in a day or less.

Climate change also plays a role as warmer temperatures expand the range of disease-carrying animals and insects we're exposed to, like the *Aedes aegypti* mosquitoes that transmit Zika. And if nature isn't bloody-minded enough, genetic-engineering tools have made it easier for terrorist groups or lone madmen to unleash custom-designed killer germs.

In the case of a new pandemic, modern medicine should provide some protection. But experts say it's more likely that we'll be caught without a vaccine to prevent it or a drug ready to treat it. That's true even with many known viruses. When the last Ebola outbreak exploded, in 2014, eventually killing more than 11,000 people, the virus wasn't a mystery to scientists; it was discovered in 1976. But even though it had been killing people on and off for decades, there were no drugs or vaccines approved to fight it—and there still aren't today, chiefly because there's little incentive for pharmaceutical companies to bring them to market.

There are troubling economic implications as well. The 2003 SARS epidemic, which killed fewer than 800

A PANDEMICS PRIMER

ENDEMIC

These diseases have a constant presence in a region. Colds and seasonal flu are endemic because they are expected, as is malaria in some tropical regions.

EPIDEMIC

These often sudden outbreaks occur when the tally of new cases exceeds what is expected for an infectious disease in a given region.

PANDEMICS

Like the H1N1 flu of 2009, pandemics not only exceed expected case levels but also spread over many countries—and often many continents too.

WHY THEY SPREAD

Despite advances in science, modern living still makes it easy for diseases to spread in a number of ways

URBANIZATION

Plagues once ravaged port cities that were overrun with vermin. Today viruses like **Zika** have hit slums especially hard.

CONFLICT

War in Syria has led to rises in **tuberculosis** and **polio** because of overburdened or destroyed hospitals and major population displacement.

SLOW RESPONSE

A known pathogen, **Ebola** still managed to spread widely in 2014 because of a slow response from the international community.

NATURAL DISASTERS

Haiti's **cholera** outbreak following the 2010 earthquake stemmed from overwhelmed health services, displaced people and poor sanitation.

AIR TRAVEL

International flights are the fastest way for diseases to cross borders. In 2009, the **H1N1** virus spread to 48 countries in one month.

people, cost the global economy \$54 billion, much of it in lost trade, transportation disruption and health care costs. The World Bank estimates that the toll from a severe flu pandemic could hit \$4 trillion.

One saving grace is that the scientific understanding of that risk is better than ever. Research groups are working feverishly to predict the next pandemic before it even happens. They're cataloging threats and employing next-generation genetic-sequencing tools to speed the discovery of new or mysterious viruses. They're helping identify and track outbreaks as they happen.

But microbes evolve about 40 million times as fast as humans do, and we are losing ground. "Of all the things that can kill millions of people in very short order," says Dr. Ashish Jha, director of the Harvard Global Health Institute, "the one that is most likely to occur over the next 10 years is a pandemic." The question is how policy—and the government dollars that back it—can catch up with the science and keep the world safe.

DOCTORS COULDN'T TELL what was wrong with Joshua Osborn, but they knew they were running out of time to save his life. Since the 14-year-old had returned to Wisconsin from a family trip to Puerto Rico, he'd suffered severe headaches and dangerously high fevers. Over the course of many months, each of the three dozen infectious diseases he was screened for—including West Nile virus, tuberculosis, Epstein-Barr and more—came up negative. Joshua was dying, but no one knew why.

His doctor, desperate, shipped vials of the boy's spinal fluid and blood to a team of scientists in San Francisco—a specialty lab run by Dr. Charles Chiu at the University of California, San Francisco (UCSF). Chiu is an undisputed leader in the field of genomic diagnosis—the science of using genetic sequences to identify pathogens—and he was Joshua's last hope.

Joshua's mystery was extreme in its consequences but not in its details. Up to 25% of pneumonia cases and up to 70% of meningitis and encephalitis cases are caused by unknown pathogens. Doctors are usually able to narrow the cause enough to come up with an effective treatment, but not always. That's where

OUTBREAKS ON THE RISE

The number of dangerous outbreaks has increased, but thanks to better modern disease control, the number of people infected per capita has fallen over time.

WHAT'S BEHIND THE MOST RECENT DISEASE OUTBREAKS

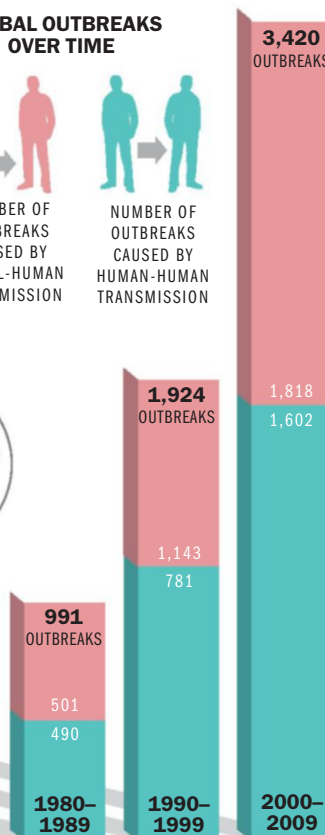
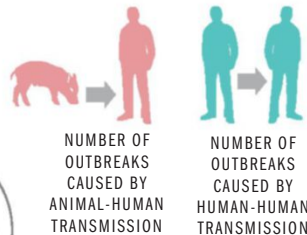
SALMONELLA	423
VIRAL GASTROENTERITIS	381
CHOLERA	251
MEASLES	246
E. COLI	239
INFLUENZA	209
HEPATITIS A	178
ENTEROVIRUS	175
ANTHRAX	169
DENGUE FEVER	150
SHIGELLOSIS	146
MENINGITIS	130
LEGIONNAIRES' DISEASE	117
TUBERCULOSIS	111
TYPHOID AND ENTERIC FEVER	106

Measles is back in the U.S. and elsewhere because of lower childhood-vaccination rates

Most of the **Influenza** outbreaks between 2000 and 2010 stemmed from H1N1

Antibiotic-resistant strains of bacterial infections like **tuberculosis** are on the rise

GLOBAL OUTBREAKS OVER TIME



GRAPHIC SOURCES: CDC; KAISER FAMILY FOUNDATION;
"GLOBAL RISE IN HUMAN INFECTIOUS DISEASE OUTBREAKS,"
JOURNAL OF THE ROYAL SOCIETY INTERFACE, 2014

genomic diagnosis, which involves sequencing all the genetic data in a patient sample in an effort to find all hidden pathogens, will be game-changing.

At the UCSF-Abbott Viral Diagnostics and Discovery Center, Chiu and his team can map blood samples against more than 8 million distinct DNA sequences to see if they match any of the known pathogens on file. For Joshua's case, they had a suspect pegged in just 97 minutes: something called *Leptospira santarosai*, a rare pathogen found in parts of the Caribbean, including Puerto Rico.

"Back in the 1980s, it would take two years to do that kind of computational work," Chiu says. "We've developed a program that can analyze 10 million reads in under 30 minutes." On the strength of Chiu's diagnosis, Joshua was treated with basic antibiotics, and four weeks later, he was healthy again.

The genetic sequence of a pathogen is a virtually fail-safe fingerprint, which is why tests like Chiu's can be so effective in diagnosing a single person's mystery illness. It's the diagnostic equivalent of fishing for germs with a huge net, instead of a single line. Genetic sequencing is especially valuable when an unknown pathogen starts killing people in droves.

In 2009, a cluster of people living in the southwestern corner of the Democratic Republic of Congo came down with a hemorrhagic fever and symptoms that included bleeding from their mucous membranes. Scientists in the field tested them for a range of pathogens known to cause similar symptoms, but it wasn't until Chiu's lab analyzed all the genetic information available that the culprit was identified: an entirely new pathogen from the family of viruses that cause rabies, among other things. "It's a major transition from what we have been able to do in the past," says John Hackett, divisional vice president of applied research and technology at Abbott, a major global health care company that helps fund Chiu's lab.

Scientists are already using these tools on active outbreaks, tracking the spread of a disease through changes in its genetic sequences. In the 2014 Ebola outbreak, a geneticist from MIT and Harvard, Dr. Pardis Sabeti, was able to determine via genomic sequencing that the virus was spreading primarily from human to human—not from animal to

DISEASE HALL OF FAME

BUBONIC PLAGUE

It doesn't hit often anymore, but when it does, it causes swollen lymph nodes, fever and malaise. Without treatment, 50% of infected people die.

CHOLERA

It causes diarrhea and severe dehydration. If left untreated, it has a mortality rate of up to 50% and can kill within hours.

EBOLA

It causes fever, muscle pain, diarrhea, vomiting and bleeding. Recent outbreaks have had mortality rates of up to 90%. It has no cure.

HIV

The virus destroys the immune system so it can no longer do its job of fighting off common illnesses. Without treatment, life expectancy is about 10 years.

SMALLPOX

Before it was eradicated, the virus produced a rash that filled with puss and formed a crust over the body. It was fatal in 30% of cases.

human, as experts had thought. That simple discovery dramatically altered how experts were fighting the spread of the disease in the field.

That kind of information can mean the difference between an outbreak that kills hundreds instead of millions. The hope is that scientists will be able to use genetic information to predict how a pathogen will behave—before a single person ever falls ill. "That's the holy grail," says Dr. Ian Lipkin, director of the Center for Infection and Immunity at Columbia University. Before that can happen, however, scientists need to collect all those genetic fingerprints in the first place.

Nearly all the new infectious diseases that scientists know about today originate in animals, and so will the emerging diseases of tomorrow. HIV began in chimpanzees, SARS in Chinese horseshoe bats, influenza in aquatic birds. At some point the animal pathogens jump the spe-

cies barrier to humans, an event disease experts call a spillover. Spillovers have always occurred, but the rapid environmental change wreaked by humans in recent years has accelerated the spread.

But what if there were a way to prevent those spillovers from ever occurring? That's the aim of PREDICT, an ambitious program designed to rapidly detect and respond to emerging pathogens. Since it was launched in 2009, PREDICT, which is funded by the U.S. Agency for International Development (USAID), has helped discover nearly 1,000 new viruses in animals and humans.

"Outbreaks are like fires," says Dr. Eddy Rubin, chief science officer at Metabiota, a San Francisco-based startup that uses big data to analyze outbreaks and is a partner of PREDICT. "If you're able to understand where there is a greater likelihood of their occurring and detect them early on, you can shift the impact."

Another piece of the pandemic-prevention puzzle is the Global Virome Project, an ambitious strategy to identify, characterize and sequence the nearly half-million viruses that have the potential to spill over. The scientists behind the project estimate that it would cost \$3.4 billion to complete. It's a huge amount of money in the shoestring world of animal health—PREDICT, by comparison, is funded at \$100 million—but its proponents believe that the project would easily pay for itself many times over if it could successfully stop a single pandemic.

The Global Virome Project, which has been championed by leading infectious-disease experts around the world, is still almost entirely aspirational—though so was the Human Genome Project when it was first proposed by academic biologists years before its formal government launch. But if deep cuts to USAID's budget are made, there may not be sustained funding for the current work being done in the field—let alone something even more ambitious. "This ties into global security," says Jon Epstein, a vice president at EcoHealth Alliance, another PREDICT partner. "Hopefully they'll see the value in that."

FOR ALL THE ADVANCES in finding dangerous pathogens, the simple truth is that neither the world as a whole nor the U.S.



VIRUS BUSTERS A South Korean health worker fumigates a movie theater in June 2015 after MERS cases were reported

in particular is at all prepared to handle a major infectious-disease pandemic—and a significant reason for that is a failure to invest in things now that can keep us safe later. The middle of the 20th century was a golden age for vaccines as scientific heroes like Dr. Jonas Salk developed drugs to protect against life-threatening diseases like polio. Yet today, while the worldwide pharmaceutical market is worth more than \$1 trillion, the market for vaccines makes up at most 3% of it.

That's why the Gates Foundation, Britain's Wellcome Trust charity and several governments launched CEPI this year. Beyond funding research to develop vaccines against existing threats, the CEPI fund—which aims to raise and spend \$1 billion over the next five years—will also support research into entirely new ways to develop vaccines.

No disease better illustrates the need for a next-gen vaccine than influenza. “We need to do better with flu vaccine,” says Dr. Anthony Fauci, director of the NIH National Institute of Allergy and Infectious Diseases. A healthy market exists

for the seasonal-flu vaccine, but because the influenza virus constantly mutates, a new version has to be made each year, a process that takes months. That lag could be deadly during a severe influenza pandemic. Humans have little to no immune protection against new flu strains, which then spread rapidly around the world and—sometimes—cause severe disease. And though the flu usually isn't deadly for otherwise healthy people, it can be, as the 1918 pandemic showed. While flu vaccines didn't exist in 1918, they did in 2009, when a new flu strain jumped from pigs to people and ultimately killed an estimated 203,000 people around the world, a majority of them under the age of 65. Efforts were made to fast-track a vaccine, but the first doses weren't available for 26 weeks, and it would have taken a year to produce vaccines for every American.

Since it can require years of testing and well over \$1 billion to successfully develop a single vaccine against a single pathogen, drug companies have increasingly shied away from the business. “There's just no incentive for any com-

pany to make pandemic vaccine to store on shelves,” says Dr. Trevor Mundel, president of the global health division at the Bill and Melinda Gates Foundation.

That's why most infectious-disease experts aren't hanging their hopes solely on new treatments or vaccines. After all, that's not what ultimately contained the most recent lethal outbreak of Ebola.

It chiefly fell to health workers on the ground and to Frieden, director of the CDC for eight years under President Obama. And on no day did that effort come closer to failure than on July 23, 2014. That was the day Frieden received news that Ebola had arrived in the Nigerian megacity of Lagos. The virus had been killing people for months in Guinea, Liberia and Sierra Leone, but Ebola in Lagos—the biggest city on the African continent, with a metro population of 21 million—represented a threat of an entirely different magnitude.

“If it got out of control in Lagos, it could spread through Nigeria and the rest of Africa,” says Frieden. “It could still be going on today.”

But it isn't, thanks largely to the herculean efforts of thousands of expert health workers—U.S. staff from the CDC and Nigerian officials who had been trained in the international effort to stop polio—who were quickly diverted to fight Ebola.

This is why Frieden, Gates and others are so bullish about investing in science and foreign aid. Without aid, Nigeria would not have been able to stem the spread of Ebola. And without the next-generation science that helped track the outbreak, far more people would have died. "It's very important that this kind of work continues," says Frieden, "or America is going to be less safe."

MAKE NO MISTAKE: for all our high-tech isolation units, top-tier doctors and world-class scientists, the U.S. health care system is not ready for the stresses of a major pandemic. As the infectious-disease expert Osterholm notes, a pandemic is not like other natural disasters, which tend to be confined to a single location or region. Disease can strike everywhere at once. In the event of a pandemic, even the best hospitals could rapidly run out of beds and mechanical ventilators.

The U.S. does have a national strategy for pandemics, and there have been welcome steps taken since the bioterrorism fears that followed 9/11. In February, the military think tank DARPA launched a program aimed at producing effective medicines within 60 days of the identification of a new, pandemic-causing pathogen. But the country hasn't been truly tested yet.

Melissa Harvey, who heads the division of national health care preparedness programs at HHS, is in charge of helping U.S. hospitals get ready for the next big threat. She notes that while hospitals were able to handle a handful of sick people during Ebola, a truly major crisis would be a different story. "In a situation like the 1918 pandemic, the expectation is that the resources are not going to be there for everyone."

If you look at the numbers, it's clear that right now the U.S. government doesn't spend in a way that says fighting pandemics is a consistent national priority. Instead, money gets issued on a disease-by-disease basis, often after a crisis has started. During Ebola, for instance, Congress appropriated more than \$5 billion in

much-needed emergency spending—but it did so nearly five months after international health groups had called it a crisis.

The drawbacks of this scattershot way of investing in pandemic response became even clearer during Zika, when it took nearly nine months for Congress to finally allocate \$1.1 billion to fight a disease that had already begun spreading in the U.S. Even then, Congress required that some of that come from existing Ebola funding that had been going to pandemic preparation. "We literally had to rob Peter to pay Paul," says Ron Klain, who served as Ebola czar during the Obama Administration.

Experts say the U.S. needs sustained funding for pandemic preparedness that extends out for years. That kind of money could help push vaccine candidates across the valley of death from R&D to commercialization as well as fund entirely new vaccine technologies. It could also ensure a steady supply of doctors and nurses trained to deal with pandemics at home, support U.S. efforts to build defenses abroad and provide a fund that could be easily tapped in the event of an outbreak.

Will Trump do that? His proposed budget from March contained some encouraging signs, including a pledge to create a new federal emergency-response fund for public-health threats as well as commitments to continue funding international programs on HIV/AIDS. But the details of the emergency fund are vague, and Trump's pledge to increase the defense budget by \$54 billion would have to be offset in part by slashing spending on health, including the NIH, which would have seen its budget cut by a fifth. Some research groups, like the NIH's Fogarty International Center, which works on emerging-disease research overseas,

would have been eliminated altogether. Proposed cuts to foreign aid and the State Department—which could eventually hit pandemic-prevention programs like PREDICT—would also be felt when the next pandemic hits.

Trump's budget proposal is just that—Congress holds the ultimate power over government spending. But in the event of a pandemic, it is the President who must lead the country.

During Ebola, Trump issued a series of tweets that have sown doubts about how he would handle a true health crisis. One called for stopping American health care workers who had been infected with Ebola from returning to the U.S. "The U.S. cannot allow EBOLA infected people back. People that go to far away places to help out are great—but must suffer the consequences!" he wrote. Another tweet warned, without evidence, that "Ebola is much easier to transmit than the CDC and government representatives are admitting." In the past he has raised doubts about the safety of vaccines, a long-discredited belief that is nonetheless shared by an increasing number of Americans, leading to a resurgence of preventable childhood diseases like measles.

Trump's habit of making wild claims on Twitter could be especially dangerous in the event of a pandemic, when public confidence in government is critical to public safety. "The emerging climate of fake news and alternative facts leaves us worse off than ever before," says Arthur Caplan, a bioethicist at New York University. "I am very worried, because I'm certain that we will get an outbreak."

On the campaign trail Trump said repeatedly that he would make America safe. But a multibillion-dollar wall at the border won't keep out disease, and cutting aid to health systems overseas is akin to slashing the CIA's budget in a time of war. If Trump is serious about protecting Americans, global health critics contend, he must embrace the soft power of pandemic preparation.

In a memorable 2015 TED talk, Bill Gates told his audience that "when I was a kid, the disaster we worried about most was a nuclear war." But today, he said, "if anything kills over 10 million people in the next few decades, it's most likely to be a highly infectious virus, rather than a war. Not missiles, but microbes." □

**THE U.S. GOVERNMENT
DOESN'T ALLOCATE
SPENDING IN A WAY
THAT SAYS FIGHTING
PANDEMICS IS A
NATIONAL PRIORITY**

HOW TO KEEP AMERICA SAFE

By Bill Gates



FOREIGN AID IS often in the hot seat, but today the heat is cranked up especially high. The U.S. gov-

ernment, one of the world's most influential donors, is considering dramatic cuts to health and development programs around the world. I understand why some Americans watch their tax dollars going overseas and wonder why we're not spending them at home. Here's my answer: These projects keep Americans safe. And by promoting health, security and economic opportunity, they stabilize vulnerable parts of the world.

This is a lesson I've learned myself. When I first got involved in health and development, the main motivation was to save and improve people's lives around the world. That's still true today, but over the years I have come to see the tangible ways in which American aid benefits Americans too.

For one thing, it helps prevent epidemics. The most recent Ebola outbreak in West Africa killed more than 11,000 people, but the death toll would have been much worse had the disease spread widely in neighboring Nigeria, a global travel hub that's home to 180 million people. What contained it? Among other things, a group of health workers who were stationed there for an anti-polio campaign. They were quickly reassigned to the Ebola fight, and their efforts helped stop the disease—and kept it from crossing the Atlantic to the U.S.

The biggest public funder of anti-polio work has been the U.S. government, and for good reason: it is protecting Americans and helping us get ready for the next epidemic, which could be orders of magnitude deadlier than Ebola. To stop emerging diseases, we need the infrastructure built by consistent funding of well-run health programs.

Another example is America's global HIV effort, known as PEPFAR, which



CRISIS PREP A dummy body is transported during an Ebola drill in Lyon, France, in 2015

was started under President George W. Bush and works with some of the world's poorest countries. PEPFAR is an undeniable success. There are 11 million people with HIV who are alive today because of the medicines PEPFAR programs provide—and many more who never got the virus in the first place.

This is not simply a humanitarian accomplishment. For many countries it means more teachers, entrepreneurs, police officers and health workers who contribute to strong, stable societies. According to one study, political instability and violence in African countries with PEPFAR programs dropped 40% between 2004 and 2015.

A MORE STABLE WORLD is good for everyone. But there are other ways that aid benefits Americans in particular. It strengthens markets for U.S. goods: of our top 15 trade partners, 11 are former aid recipients. It is also visible proof of America's global leadership. Popular support for the U.S. is high in Africa, where aid has such a dramatic impact. Withdrawing now would not only cost lives but also create a leadership vacuum that others would happily fill.

Syria is a tragic example of what can happen when the key ingredients of stability don't come together. Beginning in 2007, the country experienced the

worst drought in its history, driving more than 1 million rural people into cities, stoking political tension and laying the foundation for the horrific civil war that continues to this day. Of course, there are many causes of the war, but the world will not be a safer place if the U.S. stops helping other countries meet their needs.

None of this is lost on our military leaders. More than 120 retired generals and admirals wrote a letter to Congress in February arguing that U.S. programs "are critical to preventing conflict and reducing the need to put our men and women in uniform in harm's way." Secretary of Defense James Mattis famously said, back when he was commander of U.S. forces in Afghanistan, Pakistan and other hot spots, "If you don't fully fund the State Department"—which runs many of America's key programs—"then I need to buy more ammunition."

Protecting Americans, preventing epidemics, saving lives: aid delivers phenomenal benefits, and for a bargain. It represents less than 1% of the federal budget, not even a penny out of every dollar. It is some of the best return on investment anywhere in government. This money is well spent, it has an enormous impact, and it ought to be maintained. □



World

THE NEGOTIATOR

**MOON JAE-IN IS SET TO BECOME PRESIDENT OF SOUTH KOREA,
AND HE WANTS TO TALK *BY CHARLIE CAMPBELL/SEOUL***

ON THE MORNING OF AUG. 18, 1976, TWO American soldiers set off to trim a popular tree in the Korean demilitarized zone (DMZ). The tree was obscuring the line of sight between U.N. and North Korean guard towers on the narrow strip of land that has separated the peninsula's communist North from its capitalist South since an armistice effectively ended the 1950–53 Korean War. Both sides had approved the pruning, but North Korea sent soldiers to order the work to stop. Captain Arthur Bonifas and First Lieutenant Mark Barrett refused, and were promptly hacked to death with their own axes.

General Richard G. Stilwell, then commander of the U.N. Forces in South Korea, ordered the tree completely cut down as a symbolic act of resolve. Among the troops sent to help fell the tree was a young South Korean soldier named Moon Jae-in. Tensions were dangerously high, he says

today. "If the North had tried to interfere, it could easily have triggered war."

War is again a possibility on the Korean Peninsula—and Moon may soon be once again at the front line. The former human-rights lawyer, 64, is the clear front runner for President in the upcoming May 9 election, called after the impeachment of President Park Geun-hye over a corruption scandal. South Korea has many problems, including the Asia-Pacific's worst income inequality, rising youth unemployment and anemic growth. But the campaign has turned on how best to deal with North Korean Supreme Leader Kim Jong Un, who is locked in a standoff with new U.S. President Donald Trump over his country's nuclear program. Kim unveiled a new generation of ballistic missiles at a glittering parade on April 15, and conducted the latest in a series of tests on April 29, just hours before a U.S. Navy

*Moon Jae-in's
tryst with
destiny: bring
peace to the
peninsula*

strike group—an “armada,” as Trump put it—was due to arrive at the Korean Peninsula. China’s Foreign Minister Wang Yi has warned that “conflict could break out at any moment.”

So South Korea’s next President will inherit a deepening crisis with an irascible dictator on one side and a geopolitical neophyte on the other. But Moon, the center-left Democratic Party candidate who narrowly lost the presidency in 2012, believes it is his destiny to bring the two Koreas closer together after seven decades apart. “The North and South were one people sharing one language and one culture for about 5,000 years,” he says. “Ultimately, we should reunite.”

As a son of refugees from the North, Moon is determined to go his own way about it—tackling the Kim regime not by aggression but by measured engagement. The current cycle of antagonism helps no one, he says, least of all the long-suffering population of the Hermit Kingdom. “My father fled from the North, hating communism. I myself hate the communist North Korean system. That doesn’t mean I should let the people in the North suffer under an oppressive regime.”

Moon was born in the shadow of war. His parents fled the North aboard a U.N. supply ship in December 1950 alongside thousands of other refugees. Moon was born on South Korea’s Geje Island just over two years later. The postwar South had neither the heavy industry nor the fertile farmland of the then more prosperous North. “Poverty dictated my childhood,” he says now. “But there were benefits as well: I became independent, more mature than my peers, and I realized that money is not the most important thing in life.”

By the time Moon entered adulthood, money had begun flowing into the South. The country experienced rapid economic growth from the 1960s on, driven by export-led tech, automotive and ship-building booms. Moon grew to prominence as a pro-democracy student activist, passing the state bar exam in 1980. Following a distinguished legal career, he was invited to join the administration of former President Roh Moo Hyun. Today, the economy he hopes to lead is the world’s 12th largest by GDP. In contrast, the North stagnated under a Soviet-style planned economy. Now, the nation of 25 million is one of the world’s poorest.

Moon is aware that reunification would entail a colossal financial burden for the South. That’s why the first step in bringing the countries together must be economic cooperation, he says. He wants to allow South Korean firms access to cheap North Korean labor, and renew cultural exchanges across the DMZ. “Economic integration will not only benefit the North,” he says, “but also will give the South a new growth engine, which will revive the South Korean economy.”

But gradual reunification presents an existential as well as an economic challenge. Today’s DMZ does not just separate two unequal states—it divides the kitschy consumerism of a freewheeling South and the festering paranoia of a Stalinist North. Few pairs of states are so close yet so far apart—and even fewer have a rogue dictator, heavily armed, so intent on standing in the breach. The main challenge for any leader of the South will always be how to deal with Kim Jong Un.

RELATIONS BETWEEN North and South aren’t merely bad; there are no relations. The last summit between Pyongyang and Seoul took place a decade ago, and even at the DMZ there has been no official dialogue since 2013—when U.N. forces want to communicate with their North Korean counterparts, they use a megaphone to bellow across the gap. For Moon, this is unacceptable. “Even if Kim is an irrational leader, we have to accept the reality that he rules North Korea,” he says. “So we have to talk with him.”

There are some signs Kim has begun to relax his grip. Although dissent is still ruthlessly quashed, he has permitted a free market to take root, and the much

maligned state distribution bureaus—once responsible for doling out all provisions—are shuttered. New buildings spring up constantly in Pyongyang, where flatscreen TVs and karaoke machines are common, and locals now talk of a “rush hour.” In his New Year speech in 2015, Kim Jong Un even said he was open to talks with the South. The sticking point, as ever, is the nuclear issue. Aware of his fragile leverage, Kim has repeatedly said that the country’s nuclear weapons are “nonnegotiable.” For Moon, talks would be worthwhile only with “a guarantee that there would be visible results such as freezing or dismantlement of [the] nuclear weapons program.”

Moon has seen these kinds of negotiations in action before and believes they can work again. As chief of staff to Roh, he helped engineer the South Korean President’s historic summit with Kim’s father Kim Jong Il in 2007, and the six-party denuclearization talks between North and South Korea, the U.S., China, Russia and Japan, which ran from 2003 to 2009. A satellite launch by Pyongyang ended the talks, and critics say the \$4.5 billion of aid funneled to the regime during the “sunshine policy” of engagement actually accelerated the weapons program. Moon, however, points to the Sept. 19, 2005, Joint Declaration—encompassing full dismantlement of North Korean nuclear weapons, a peace treaty and even normalized relations with the U.S.—as evidence the sunshine policy was better than the following decade of isolation and censure. “The North even blew up the cooling tower of its nuclear reactor,” he says. “The same step-by-step approach is still workable.”

Given Trump’s stated disdain for the nuclear deal the U.S. helped fashion with Iran, it’s hard to imagine he would be eager to pursue a similar agreement with the Kim regime, which has a track record of noncompliance. But Moon says he and Trump already agree that the Obama Administration’s approach of “strategic patience” with North Korea was a failure. Surely the U.S. President could be persuaded to take a different tack, he says. “I recall him once saying that he can talk with Kim Jong Un over a hamburger.” Trump, he adds, is above all a pragmatist. “In that sense, I believe we will be able to share more ideas, talk better and

**‘ECONOMIC
INTEGRATION WILL NOT
ONLY BENEFIT THE
NORTH, BUT ... WILL
REVIVE THE SOUTH
KOREAN ECONOMY.’**

—MOON JAE-IN



reach agreements without difficulty.” Indeed, on May 1, Trump told Bloomberg that he “would be honored” to meet Kim.

There are few safe alternatives. Trump is currently pressuring China, responsible for 90% of North Korean trade, to turn the screws on Pyongyang and take steps against Chinese businesses and banks doing deals with North Korea. “China has great influence over North Korea,” he has said. Perhaps, but the relationship today is steeped in mistrust. Beijing has signed up to unprecedented U.N. sanctions, banning imports of coal for the rest of the year. There is room for Beijing to do more: suspending the 500,000 tons of crude oil it sends to North Korea annually, for example, was what brought Kim Jong Il to the six-party talks in 2003.

However, China has its limits. If the Kim regime collapsed, a massive influx of refugees would certainly make their way into the People’s Republic. South Korea is also home to 28,500 U.S. troops, and reunification might put them right on China’s border. So Kim knows China would never squeeze enough to foment

▲
*Moon is determined to engage with
the regime of North Korea’s Kim
Jong Un, above, second from right*

its collapse. “It’s like trying to bluff at poker when the other players can see your cards,” says John Park, director of the Korea Working Group at Harvard Kennedy School.

Military action by the U.S. also remains a possibility, but most experts think it’s unlikely. Aside from possible North Korean retaliation, any strike would certainly shred the U.S.’s Asian security alliance and push the region closer to China. “How would the U.S. or anyone else be better off?” asks Daniel Pinkston, an East Asia expert at Troy University in Yongsan, South Korea. “It’s just insane.”

All of which leaves room for Moon’s push for engagement to succeed. Moon’s chief rival in the May 9 election, Ahn Cheol-soo, a self-made tech multi-millionaire, favors a more militaristic approach to bringing the North to the negotiating table. This includes accepting

the U.S. Terminal High Altitude Area Defense (THAAD), an antimissile defense system, which Beijing deems an affront. Moon, who was 21 points ahead of Ahn in an April 29 poll, is more cautious on THAAD, saying its deployment should be examined by the next administration.

But both candidates are united in their insistence that South Korea cannot be sidelined when Washington deals with the North, not least as its 50 million citizens stand to be among the first victims of any military conflict. And although younger South Koreans feel little affinity with the North, older generations are eager for the reunification Moon so desires. “My mother is the only one [of her family] who fled to the South,” Moon says. “[She] is 90 years old. Her younger sister is still in the North alive. My mother’s last wish is to see her again.”

It’s a wish that resonates with countless ordinary Koreans—on both sides of the battle lines—who want peace to triumph over war. —*With reporting by ZOHER ABDOLCARIM and STEPHEN KIM/SEOUL* □

Society

The last act. After 146 years, the circus is leaving town for good

By David Von Drehle • Photographs by Andres Kudacki for TIME





Weeks before the lights go down for the last time on the Ringling Bros. and Barnum & Bailey Circus, tigers and lions perform on April 28 in Baltimore's Royal Farms Arena

Though it might sound quaint, there was a time when people could be astonished.

Before supercomputers fit into shirt pockets and Presidents tweeted. Before moving pictures were beamed through the air. Before moving pictures.

Not only could people be astonished—they enjoyed it. Loved it enough to pay for it. And so businesses sprang up to meet the demand. The astonishment industry was called the circus.

And what an industry it was. Picture yourself in a quiet American town of ordinary people doing nothing even remotely astonishing. One day, a couple of strangers show up with handbills and paste to cover the town with circus posters. SEE the fearless lion tamer. THRILL to the death-defying wire walkers. GASP at the woman on the flying trapeze. Your brain did the rest. By the time the circus arrived via boxcar or truck, you were desperate to have your mind blown. Elephants—real, live elephants, thousands of miles from Africa or India—pulled the ropes to raise the tents. Inside you would see a man ordering tigers around, women poised on the backs of cantering horses, human pyramids walking on high wires with nothing to catch them if they fell.

On May 21, the most famous circus of all, Ringling Bros. and Barnum & Bailey, will end its 146-year run, not with a whimper or a bang but mostly a shrug. Death has been a long time coming. A company press release put much of the blame on the recent decision, made under pressure from animal-rights groups, to stop using elephants as performers. But in fact, the Greatest Show on Earth has been headed for this day since the 1950s, when the same force that killed vaudeville—television—drove the storied operation out of its vast canvas big tops and into ho-hum auditoriums and arenas.

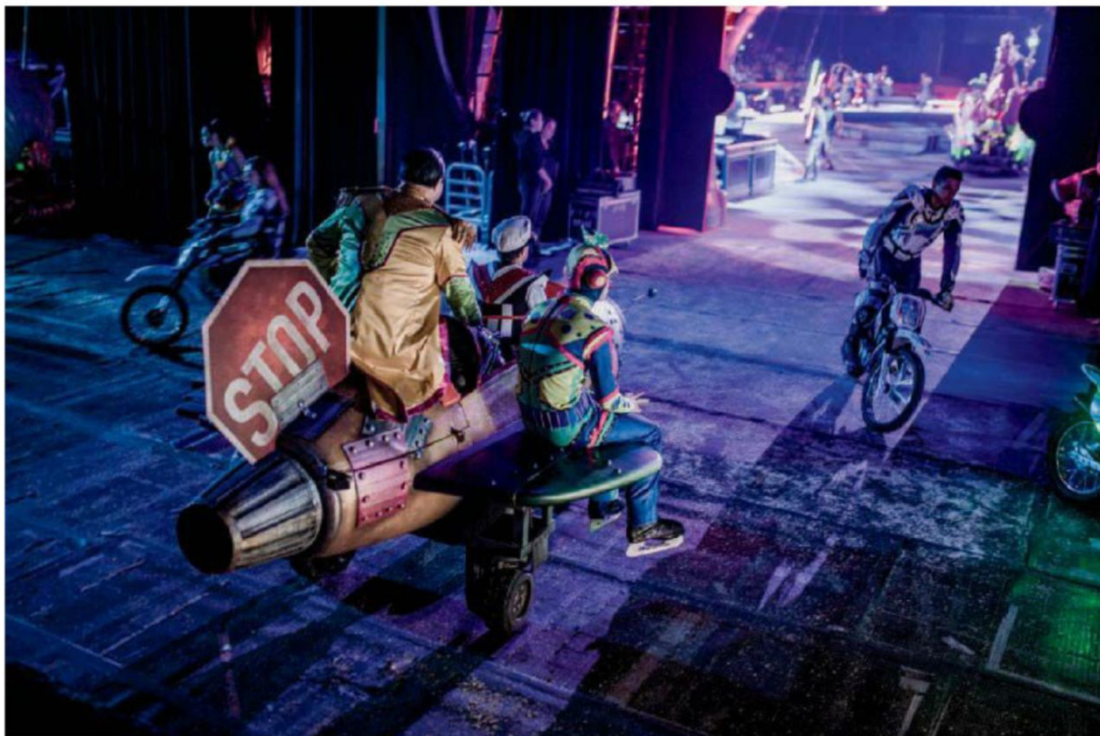
Other, smaller circuses limp on, but the end of this run is a milestone. Almost the entire history of the American circus is summed up in one long name. “Barnum” refers to Phineas Taylor Barnum, the brilliant sideshow promoter who counts



Ringmaster Johnathan Lee Iverson and his son Matthew get ready for one of their final crowds



The circus menagerie includes trained pigs, washed here by their trainer, Hans Klose



In the wings, performers await their cue to zoom onstage



Davis Vassallo, one of eight clowns in the Greatest Show on Earth, puts on his happy face backstage

the current President among his admirers. In 1871, already famous for his publicity stunts, Barnum joined circus innovator William Coup and his partner Dan Castello to create a traveling menagerie and equestrian stunt show; six years later, Barnum merged with a circus run by the gifted ringmaster James A. Bailey.

A circus in those days was more than a performance—it was a culture. One less sensitive than ours, but also less jaded. Alongside the big top were smaller tents that contained wonders and oddities and thrills: fat men and bearded ladies, dwarves and giants, conjoined twins and acrobats with missing limbs. There were games of chance (usually rigged), and exotic animals in painted cages, and musicians with gold piping on their jackets ever ready to strike up Fucik's "Entrance of the Gladiators."

And it was sexy too. In an era of long skirts, long sleeves and long sermons, the circus gave people permission to stare at athletes in tights and tiny costumes. The women wore outfits with legs showing up to here and cleavage down to there. The men marched shirtless, with muscles rippling, to swing upside down high in the air and snatch tumbling women from the edge of disaster.

This rolling exotica sank its hooks deep in the American mind. Generations of bored children dreamed of running away to join the merry misfit band of rogues and live lives that would never be dull again.

After Bailey died in 1906 at his sprawling New York estate, the Ringling brothers of Baraboo, Wis., owners of a thriving circus, bought the Barnum and Bailey operation from the ringmaster's widow. Eventually, they merged the two shows and sent their circus trains steaming from coast to coast.

Now our supply of stimulation is infinite, and our capacity for wonder is dwindling away. Sex is everywhere, and entertainment is on demand. Nostalgic parents have been struggling for a couple of decades to hide their disappointment from their children after seeing what the circus has become: a deafening soundtrack of recorded music backing a dull program punctuated by strobe lights, foreshortened performances cut to Internet attention spans, a rip-off of \$6 sno-cones and \$20 flashlights.

Meanwhile, the children have been struggling to understand why their parents would care. Nothing can compete with the circus that they hold in the palms of their hands. □



Trainer Alexander Lacey gives a big cat a big hug





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Time Off

'HOW DO YOU CAPTURE THE ESSENCE OF A LIFE IN 800 WORDS, TOPS, GENERALLY IN JUST A FEW HOURS?' —PAGE 55



Andy Karl, center, plays smug weatherman Phil Connors in the Broadway adaptation of *Groundhog Day*

THEATER

On Broadway, it's déjà vu all over—and not just for *Groundhog Day*

By Eliza Berman

AT THE END OF THE 1993 ROMANTIC comedy *Groundhog Day*, after a seeming eternity of waking up over and over again on the same day, weatherman Phil Connors finally, truly, spiritually awakens. Twenty-four years later, Phil is again trapped inside of Feb. 2. Only this time, he bears no resemblance to the actor who originated the movie role—a delightfully caustic Bill Murray. And his purgatory plays out in front of a live audience on Broadway.

The musical *Groundhog Day*, which opened on April 17 to rave reviews, is the latest entry in the increasingly popular movie-to-musical pipeline. (See related chart on page 52.) Just as Hollywood is rebooting old hits and elevating forgotten comic-book heroes, the theater industry

has turned to existing intellectual property—and movies in particular—for inspiration.

As a film, directed by Harold Ramis, *Groundhog Day* achieved cult status. But there are a number of reasons the musical *Groundhog* could have faltered on its way to the stage. Revisiting a beloved contemporary classic posed the risk of alienating fans if it strayed too far and failing to connect with nonfans if it hewed too close. The repetitive premise risked tedium without the flexibility of film. And that is to say nothing of the absence of Murray, whom Roger Ebert called “indispensable.” “The more the audience loves the film, the harder your job is,” says Matthew Warchus, who directed the production.

But after transferring from London, where it won Olivier Awards for Best New Musical and Andy Karl's updated take on Phil, the show is poised to become Broadway's next hit. (It just grabbed seven Tony Award nominations.) That's because its creators—Warchus, composer and lyricist Tim Minchin and writer Danny Rubin, who co-wrote the film—have amplified, and not just re-created, its tale of a cynic's metamorphosis.

Having dreamed up the musical no sooner than he'd sold the script to Hollywood, Rubin had been marinating on ideas for decades while teaching screenwriting. So he was encouraged when Warchus said not to see the stage as a limitation: "Anything you can dream up, we can do onstage."

"We thought it lent itself really well to theater," says Warchus. "Film is more of a literal medium compared to theater, which is more poetic." To adapt a montage in which a despondent Phil devises myriad ways to end his life, he has stunt doubles create the illusion of jump cuts between the toaster in the bathtub and the plunge from great heights—with Phil waking up in his bed after each try.

But where the musical dispenses with some of the movie's minutiae, it offers something new: Minchin's songs, which mine the inner lives of characters like Phil's producer-slash-love-interest Rita Hanson (Barrett Doss); a former high school punching bag; and a one-night stand with dreams beyond bedding visiting meteorologists.

"The film smuggled a story with deep meaning into the mainstream as a romantic-comedy popcorn film, without compromising much on its depth," says Warchus. Which may explain why *Groundhog Day* has legs while other adaptations falter.


"It taps into something universal, to look at the world through other people's eyes," says Karl. "When you get there, it's a beautiful thing. You get to see the world much clearer." □


'The more the audience loves the film, the harder your job is.'

MATTHEW WARCHUS, director of the musical *Groundhog Day*


COMING ATTRACTIONS Many Broadway musicals of tomorrow greatly resemble movies of the not-too-distant past. The key ingredients? A faithful following and a little room for reinvention.


- | | | | |
|---|---|--|--|
|  Breaking into song |  Scantly clad dancers |  Supernatural intervention |  Based on a book |
|  Ice queens |  Workplace drama |  Love triangle |  Bosom buddies |

 **Beaches (released 1988):** Two girls meet under an Atlantic City boardwalk, grow up to follow divergent paths and remain bonded through heartbreak, tragedy and bad hair. Iris Rainer Dart, who wrote the 1985 novel, is writing the lyrics and co-writing the script.


 **Beetlejuice (1988):** Two freshly dead ghosts and a bug-eyed demon (Michael Keaton in the film) try to scare away the new owners of their home. *Bloody Bloody Andrew Jackson's* Alex Timbers is attached to direct.





 **Bull Durham (1988):** Writer-director Ron Shelton is adapting his semiautobiographical film, with music by folksinger-songwriter Susan Werner, about a fading minor-league talent and a spiritual baseball groupie who preps a hotshot pitcher for the big leagues.

 **The Preacher's Wife (1996):** *Unbreakable Kimmy Schmidt* star Tituss Burgess is writing music and lyrics based on the Whitney Houston fantasy film about an angel sent from on high to revive a flagging marriage.





 **Moulin Rouge! (2001):** Playwright John Logan, who wrote the Tony-winning *Red*, will adapt the musical movie about an earnest poet who falls for a courtesan, set against the backdrop of bohemian Paris at the turn of the 20th century.


 **13 Going on 30 (2004):** The movie's original screenwriters are adapting the story about an awkward teenager who wishes on some glittery fairy dust to skip the rest of her lonely adolescence, grows up overnight and learns some valuable lessons.

 **Mean Girls (2004):** Tina Fey is reworking her screenplay about a homeschooled teen adjusting to life in the jungle that is high school: preening mates, predatory "Plastics" (led by Rachel McAdams in the film) and their outcast prey.



 **The Devil Wears Prada (2006):** Elton John is composing the music for the stage version of the story about a frazzled assistant to the nightmare editor of a fashion magazine, whose brand-new wardrobe comes with a side of hard-won growing up.

 **Magic Mike (2012):** A stage musical will serve as the prequel to the smash hit and its 2015 sequel, charting Magic Mike's journey from struggling college student to sensitive, gyrating stripper, with music by Tony winners Tom Kitt and Brian Yorkey.

 **Frozen (2013):** The Disney obsession children everywhere can't let go of will hit the stage in the spring of 2018, starring Broadway vets Caissie Levy and Patti Murin as the royal sisters.





Mad woman:
Moss portrays
Offred, a
“handmaid”
forced into
sexual servitude

TELEVISION

TV’s great new heroine is born in *The Handmaid’s Tale*

By Daniel D’Addario

IT HARDLY SEEMS COINCIDENTAL THAT MARGARET ATWOOD’S 1985 novel *The Handmaid’s Tale* is one of two classics to garner renewed interest after President Trump’s election. (The other, George Orwell’s 1984, is being adapted for Broadway this summer.) *Handmaid’s* themes—the cruelty and illiberal thinking of theocracy, the ease by which democracies slip into authoritarianism—are suddenly so relevant to so many that it would be easy to conclude that the new series, now playing on Hulu, is the beneficiary of extraordinarily good timing.

But that would be giving Hulu’s *Handmaid’s* too little credit. The ideas drawn out in this masterful adaptation did not suddenly become relevant after one election. And the show is as elegantly made as anything on television this year. It manages to bring a dystopian story to life in a way that works as episodic TV, sapping none of the book’s power. This is a series that could work anytime and one that will likely be watched for years to come.

Elisabeth Moss plays Offred, a “handmaid” through whose eyes we see life in the Republic of Gilead. Moss’s character had lived a pleasant middle-class life in urban America. We see in flashbacks that the first shocks of societal change hit her as odd bits of turbulence. They increased in intensity bit by bit—causing panic only when it was too late. Moss, who acted through a decade’s worth of female empowerment on *Mad Men*, never telegraphs the future that viewers know is coming. She’s a genius at portraying confusion, rather than outright horror.

Moss’s skill only emphasizes the tragedy of the show’s main story line. One of the few women able to give birth, she’s forced into sexual slavery in the home of a government official. (She is named Offred because she’s “of Fred,” as in belonging to her new master, Fred.) This

life forces her to constantly keep on guard, continually choking back emotion that roils below the surface in order to stay alive.

Every detail of *The Handmaid’s Tale*, from the distinctive costuming of the maids—massive hoods that shield their faces and limit engagement with the world—to the supporting performances, hits exactly the right notes. Aside from Moss, standouts include Samira Wiley (*Orange Is the New Black*) as Moira, a friend to Offred who faces the added hazard of being gay. Ann Dowd (*The Leftovers*) is menacing as Aunt Lydia, who educates the women in the ways they’re supposed to go along and get along in this society. Her command: the women should give themselves up to violence as catharsis and turn off their brains the rest of the time. Lydia’s status as both woman and abuser of women makes a sharp point about humans’ ability to go against their better angels.

There’s little hope in *The Handmaid’s Tale*, but there is this: the show depicts a world in which women aid other women as often as they miseducate, abuse and inform on one another. The book is masterly at casting its spell, methodically building a fallen world that could exist. The show, by contrast, immediately plunges you into chaos and forces you to keep up. At its best, it has a tension unmatched on television. The more you watch Moss as Offred, the more she looks like TV’s great new heroine.



MOSS’S MOMENT

Between *Mad Men* and *Top of the Lake*, Moss has been nominated for seven Emmys. *The Handmaid’s Tale* is likely to thrust her into consideration again this year

THE HANDMAID’S TALE streams new episodes Wednesdays on Hulu



The Guardians gang, with a few new members, proves that more can actually be less

MOVIES

Guardians Vol. 2 laughs it up, self-indulgently

AS MODERN GARDEN-VARIETY ESCAPIST CINEMA goes, there's nothing inherently wrong with *Guardians of the Galaxy Vol. 2*, director and writer James Gunn's sequel to his 2014 megahit, both adapted from the Marvel comics series. But this overstuffed follow-up is also emblematic of all we've come to settle for in movie entertainment: it feels not so much crafted as squirted from a tube. There are enough plots here to fill a dozen galaxies. Chris Pratt returns as boyishly cute space pirate Peter Quill, leading a crew that includes Zoe Saldana's green-skinned warrior beauty Gamora, as well as Rocket, the potty-mouthed raccoon voiced by Bradley Cooper. Vol. 2 also introduces a sort-of new character, Baby Groot (Vin Diesel), a twig-size offshoot of the grownup tree-person Groot, who met a noble almost-end in the last movie. (In the *Guardians* galaxy, goodbye is never forever.)

This time around, Quill tangles with the swaggering, mirthful god Ego, who claims to be his father. As played by Kurt Russell, Ego is the movie's one pleasure, a radiantly self-absorbed silver fox for whom the world is one giant little blue pill. He lives on a planet of his own creation, a riotously colored landscape made of Magic Rocks and Silly Sand, or so it seems—his castle is what you'd get if Antoni Gaudí had built a Las Vegas hotel. But Russell and his wild planet can't save this self-indulgent, hyper-active mess. At one point, Drax, a lavishly tattooed space dude played by former pro wrestler Dave Bautista, announces, "I have famously huge turds!" and laughs heartily, in case we can't be trusted to get a poo-poo joke. This is a movie that praises viewers for being cool enough to show up and then proceeds to insult them—but only ironically, see?

—STEPHANIE ZACHAREK

QUICK TALK

Debra Winger

The three-time Academy Award nominee, 61, who famously withdrew from movies for six years, plays a long married woman in the comedy *The Lovers*.

This movie is about a less-than-optimal long marriage. Are you not a fan of long marriages? I only know of one deeply, my own. I've got nothing against them as long as it's not a decision you make once and then never revisit.

You've been married 20-plus years. Any tips for keeping it fresh?

Anybody who says they understand how to make love stay would have to be called a liar or misguided. The intention is to stay awake, stay alive, keep loving, keep lit up, keep being able to light up the other one. Those are the real tricks. That and some pixie dust.

These lovers are having affairs.

Is there a cure for our desire for novelty? No. I think that's the human spirit. But I don't think it's about another person. We seek out someone else because we are not being seen. We go out looking, but we're really just looking for ourselves.

What would the *Lovers* actor tell the *Officer and a Gentleman* actor? Oh, she wouldn't listen.

Nobody could tell me anything then. As it should be. I'm neither proud nor ashamed; I was finding my way in a world that was pretty tough on a girl, but I was coming out of pretty tough young life too. So I got tough on the exterior as a protective maneuver.

You have a fairly serious sex-scene montage in this film. This isn't a question. I just wanted to give you props. I wanted to bring all the parts of the relationship. If you're going to bring the sad parts, you'd better be ready to do an honest day's work and bring the compelling thing. Anyone who thinks physical attraction dissipates with age is not trying hard enough. There are just so many ways to Sunday. —BELINDA LUSCOMBE

ON MY RADAR

THE AMERICANS

"As well as *Better Call Saul* and *Louis CK's 2017*, as many times as I can tolerate."





Coogan and Gere as brothers in *The Dinner*: blood is thicker than water, and wine too

MOVIES

Dysfunction by the plateful in *The Dinner*

REPPRESSED GROWNUPS AND THEIR PROBLEMS ARE A bounteous source of inspiration for writers and filmmakers, and *The Dinner*—which director Oren Moverman adapted from Herman Koch's 2009 novel—serves up a multicourse feast of dysfunction. Richard Gere plays Stan, a chilly, pragmatic Congressman gunning for the governor's office. His second wife, Katelyn (Rebecca Hall), stands with him, though she can barely hide her exasperation. His brother Paul (Steve Coogan) has had it rough: his struggle with mental illness has cost him his job as a history teacher, and though his wife Claire (Laura Linney) is supportive, her own health problems have cast a shadow on the marriage. The two couples gather for dinner at a chichi restaurant, one of those places where the food is marched out with reverence, like edible royalty.

It should all be lovely—except the two couple's children have gotten into some deep and rather ugly trouble, and the grownups differ on how much they should intervene to set things right. We learn, through flashbacks nestled between courses, not just what these kids did, but also how their parents have wrestled with their own lifelong stresses and traumas.

That's a lot to pile on one dinner plate, but Moverman (*Rampart*, *The Messenger*) keeps the action moving smoothly, even when it just involves talking—or bickering. Actors live for this kind of material, and the ensemble rallies, particularly Coogan. We're used to seeing him in comedies—like the *Trip* movies, with Rob Brydon—but here, he's wholly convincing as a man whose nerves have been scraped raw. As he suffers through this evening of forced socializing, we too feel the weight of every tense minute. —S.Z.

'I suddenly realized that it couldn't be any better. It couldn't be anyone else.'

OREN MOVERMAN, in *Entertainment Weekly*, on how he cast Steve Coogan after seeing him mimic Richard Gere in *The Trip*

DOCUMENTARY

The art of Obit: a life in 800 words

WHEN A FAMOUS PERSON dies, reading a well-written obituary can provide a therapeutic farewell to someone whose life and work touched us. And upon the death of someone like, say, the inventor of the Slinky—whose name we never knew but whose legacy marches on—a good obit illuminates not just one particular individual's story but also the broader idea of all that is possible in life.

Writing an evocative, compact, accurate obituary is an art, and Vanessa Gould's joyous documentary *Obit* takes us on a tour of the joint where some of the best are written—the obituaries desk of the *New York Times*. How do you capture the essence of a life in 800 words, tops, generally in just a few hours? Gould interviews a number of *Times* reporters who spend their days telling us about the recently deceased, including ace obit writer Margalit Fox. She sums up why these posthumous mini bios matter and why they're not inherently depressing: "Obits have next to nothing to do with death and, in fact, absolutely everything to do with the life." —S.Z.



Jeff Roth tends to the *Times*' obit "morgue"

TIME
PICKS✓
MUSIC

Tennessee pop-rock band Paramore returns with an '80s-inspired new-wave sound on its bouncy album **After Laughter** (May 12), featuring ace vocals courtesy of frontwoman Hayley Williams.



BOOKS

Author Michael Ruhlman's deeply reported **Grocery** (May 16) navigates shifting food needs through the prism of a Midwestern chain.

TELEVISION

Netflix's **Master of None** (May 12) returns for a second season as Aziz Ansari's love- and food-hungry character schmoozes his way through the food scenes of Italy and New York City.

✓
MOVIES

A brave woman abducted by a serial-killer couple gets crafty in order to survive in the stylish '80s-set thriller **Hounds of Love** (May 12).



FICTION

The girls
off the cliff

PAULA HAWKINS RODE TO fame on her 2015 hit *The Girl on the Train*, a book that deftly deploys the “girl” thriller subgenre that includes *Gone Girl*, *The Girl With the Dragon Tattoo*, *The Girl Before*, *The Girl from Home*, *The Girl on the Bridge* and *The Girls on the Bus Go Round and Round*. (O.K., that last one's not real—yet.) These books center on complicated, flawed or unlikable female protagonists, boldly going where so many males have gone before.

Though it doesn't have “girl” in the title, Hawkins' new book is in the same vein. *Into the Water* once again throws a group of women together, this time in the English village of Beckford, where a riverbank cliff and the “drowning pool” beneath make for a popular suicide spot. But when two women die within months of each other, people begin to suspect foul play. The deceased: a teenager named Katie and her best friend's mother Nel. Nel had been writing a history of the infamous drowning pool, which didn't endear her to the rest of the town. Also populating Hawkins' narrative coterie are Nel's snarky daughter Lena, her estranged sister, a psychic, a tough school principal and Katie's resentful mother.

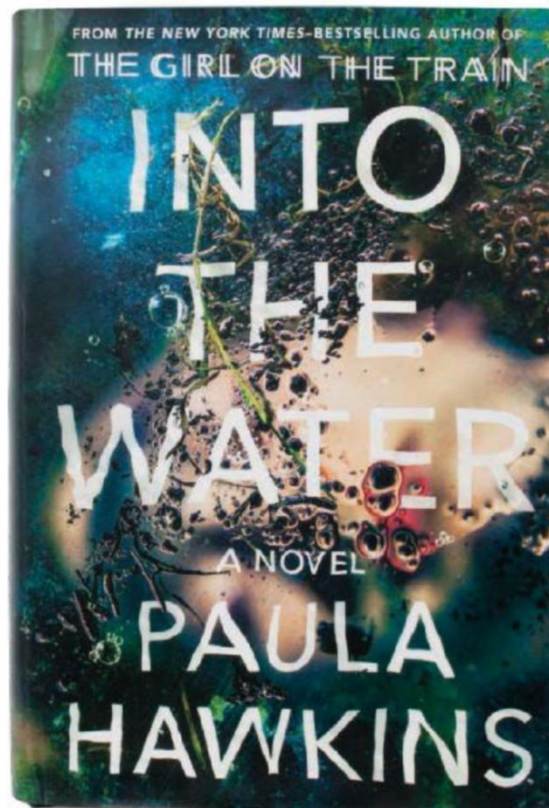
Hawkins' stagecraft is at times shaky: motives are overstated, action sequences are vague (“I don't know what happened then. He fell, I think ...”) and details can get muddled, making it easier to separate red herrings from

real clues. But the twists deliver in the final stretch, down to the last sentence.

Yet suspense, for Hawkins, is almost secondary; part of the thrill of her thrillers is the social commentary. These female characters resound because they are wronged in ways all women are, though to more heinous degrees.

✓
SHEDUNIT

Hawkins worked as a journalist for 15 years and published several books before she wrote *The Girl on the Train*, which has sold 20 million copies



Their husbands betray them, their bosses discount them, and even their sisters and daughters are unreliable allies.

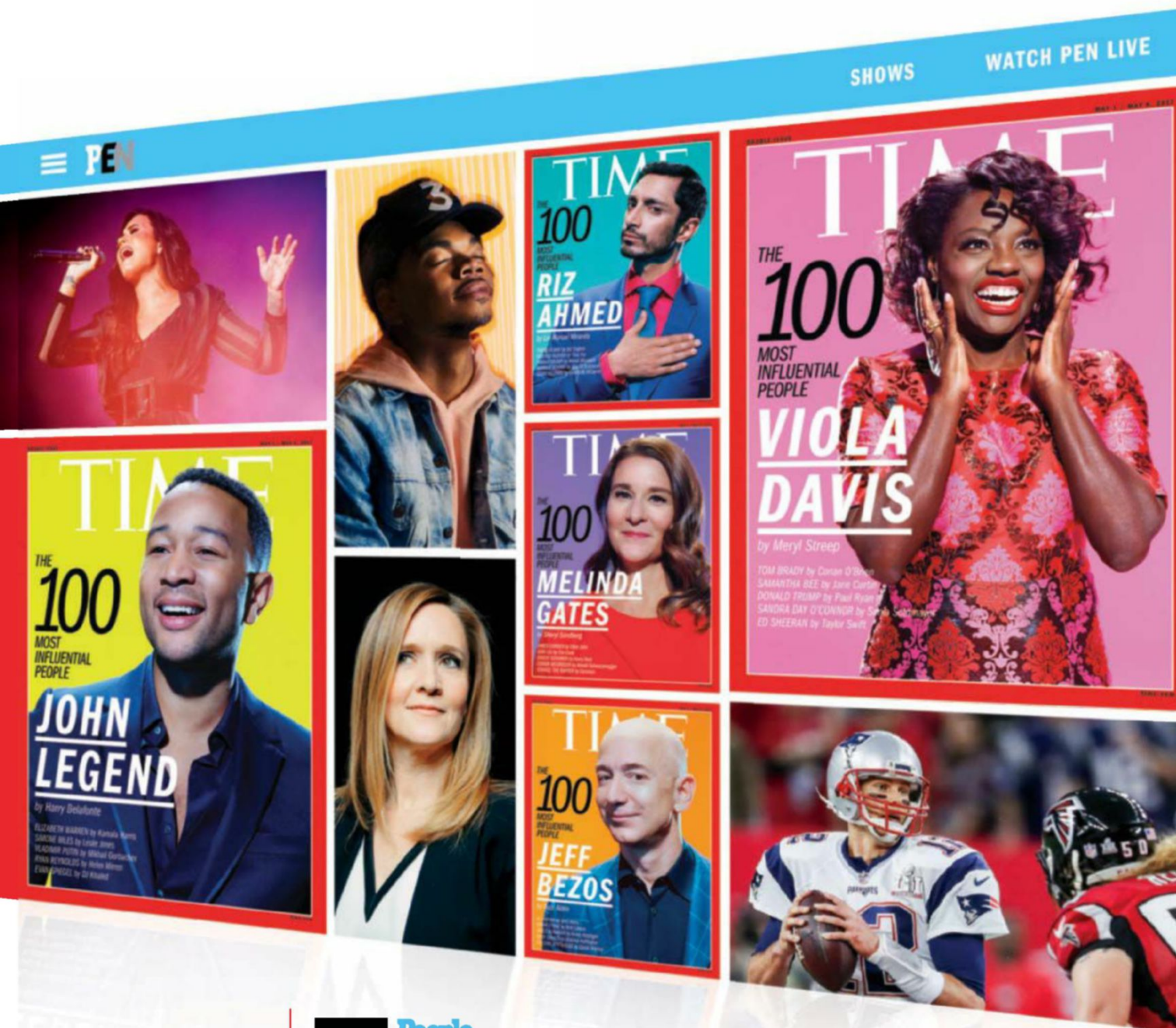
Once the cases are closed, the people of Beckford debate who is and is not a “good person.” They apply the label forgivingly to men with excuses for their misdeeds but withhold it from the women who end up tangled in the weeds of the drowning pool. This infuriatingly familiar double standard made *The Girl on the Train* popular among women, who will hear it again in these lines from *Into the Water*: “Beckford is not a suicide spot,” Nel writes in her manuscript. “Beckford is a place to get rid of troublesome women.”

—SARAH BEGLEY



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The Internet nearly unanimously **crowned Rihanna queen of the Met Gala's red carpet** for her structured Comme des Garçons look, which, according to designer Rei Kawakubo, drew inspiration from "punks in the 18th century."



When a Blockbuster store announced that it was closing, employees helped a Texas family **build an in-home version of the film-rental chain** for their movie-loving autistic son.



Kenny G gave an in-flight saxophone performance after passengers on a Delta plane doubled his request to donate \$1,000 to the American Cancer Society; the stunt was inspired by Kenny G's seatmate, who lost her daughter to brain cancer.



A Kenyan wildlife conservancy created a **Tinder profile for the world's last male northern white rhino** in an effort to raise money for breeding research.



The University of California, Berkeley, will **offer a summer linguistics course inspired by Dothraki**, one of the fictional languages spoken on *Game of Thrones*.

TIME'S WEEKLY TAKE ON

LOVE IT
LEAVE IT

WHAT POPPED IN CULTURE



A four-bedroom Hong Kong villa is on the market for \$87.5 million, **an astronomical \$21,230 per square foot**.

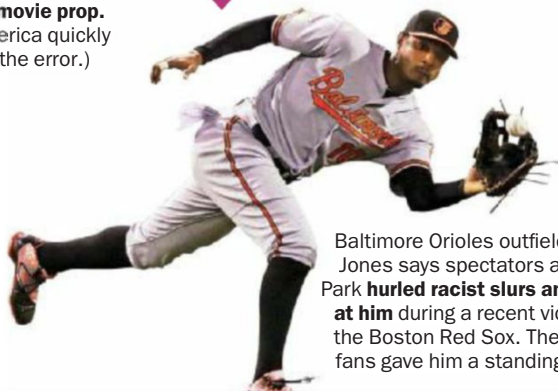


A Seattle woman withdrew \$300 from a Bank of America ATM to find that **one of the \$20 bills was a movie prop**. (Bank of America quickly remedied the error.)

Nordstrom is drawing criticism for selling **\$425 men's jeans covered with "a cracked, caked-on muddy coating** that shows you're not afraid to get down and dirty."



Bangkok revealed plans to start **restricting the city's famous street-food vendors**—in the name of "order and hygiene"—days before announcing a new street-food festival.



Baltimore Orioles outfielder Adam Jones says spectators at Fenway Park **hurled racist slurs and peanuts at him** during a recent victory over the Boston Red Sox. The next day, fans gave him a standing ovation.



Whose privilege is showing? Probably mine. But don't ask me to check anyone else

By **Susanna Schrobsdorff**

WHEN I WAS 16, I WORKED IN THE NURSING HOME A FEW miles from my house. It sat without irony right next to a funeral parlor. There was just a driveway between the two buildings, and the funeral director used to send leftover flower arrangements that we'd dismantle and put in vases so they weren't quite so recognizable. There was, as you can imagine, some traffic going the other way too.

It was a sobering place to spend your days as a teenager. Most of us did one or two shifts after school, 4 p.m. to 11 p.m., and Sundays from 7 a.m. to 3 p.m. Each aide was responsible for getting eight or so residents up for the day, fed, bathed, dressed and their sheets changed before noon, which was impossible if you tried to take care of them sequentially. You had to strategize. Get Martha's breakfast unwrapped while her roommate is inching to the bathroom, or they'd still be eating breakfast when the lunch trays arrived. I learned more in that job than I did in school. But that wasn't why we worked there. We did it because the home paid more than fast food, and we needed the money. It was a tough, threadbare little town, but we could leave. We had the most perishable of advantages: youth.

These days I'm just another privileged cisgender white woman in a cushy part of Brooklyn, as my teen daughters point out constantly. They're right. I won't suffer directly from racism or homophobia or fear that I'm not safe or that we won't have enough to eat. And I should note that I had an aunt and uncle who helped pay for college and got me my first job, which opened a thousand doors. So, yeah, I didn't build this life by myself, to paraphrase President Obama.

But their comments sting. I get all indignant and tell them nursing-home stories. Or McDonald's fry-station stories. Or protest stories. It's my version of "I walked five miles to school in the snow so you don't have to"—a lame attempt to prove that I'm more than a mom in pricey yoga pants who's forgotten what it was like to do shift work or worry about whether the groceries would run out before the week ends.

Being accused of unchecked privilege is a fearsome insult in this climate. The advice is legit: acknowledge your inherent advantages and biases when considering someone else's situation. But in practice it can be complicated and divisive, and not just for clueless boomers. Just ask Lena Dunham, whose brand of feminism critics have savaged as elite and oblivious to racism. There are even online quizzes that test how privileged you are and in what ways. Questions range from "I never had to 'come out'" to "I have had an unpaid internship" and "I have never been shamed for my body type." Some companies have workshops that run along the same themes



hoping to inspire more empathy for others. Left or right, no one wants to be seen as having unearned advantages. Every politician has a hard-luck origin story, if not about themselves, then about their parents. The Sanders and Clinton campaigns fought over which movement was less elite. Even Donald Trump says he worked his way up without much help from his millionaire father.

SO, YES, we all need to remind ourselves of our advantages: whether it's straight privilege, or financial privileges, or able-bodied privilege, or whatever extra boost we've gotten. Humans are prone to credit our successes to our own ingenuity, true or not. Researchers at the University of California, Berkeley, asked randomly selected subjects to play Monopoly. But the game was rigged. The winner of a coin toss got twice the starting cash and higher bonuses for passing Go.

Not surprisingly the advantaged players won. But as they prospered, their behavior changed. They moved their pieces more loudly than their opponents, reveled in triumphs and even took more snacks. Some, when asked about their win, talked about how their strategy helped them succeed. They began to think they earned their success, even though they knew the game was set up in their favor.

Sometimes privilege is in the eye of the beholder. The lesson I keep relearning is: don't assume. Not all privilege is obvious, and not all disadvantages are easily defined. No one would guess that my father, an athletic guy with endless cheer, suffered such trauma as a child, thanks to a horrible family situation and the stress of war; it's a wonder he was functional.

Dad died a few years ago of dementia—that terrible equalizer. There was nothing his privileged daughters could do about it except help the aides when we were there. At least we knew how to change a hospital bed. ▣

Elizabeth Strout The Pulitzer Prize–winning author of *Olive Kitteridge* returns with a story collection, *Anything Is Possible*, about war, personal trauma and class divides

This book features some characters from your last one, *My Name Is Lucy Barton*. When did you decide to continue their stories? I actually wrote them in tandem. So I would be writing pieces of Lucy and her mother, and then I would think, Oh, Mississippi Mary [a character in both books]. So I would literally move over to a different part of the table and write out some scenes for Mississippi Mary. It was back and forth for a while.

Almost every story in this book deals with the concept of shame. Why?

That's interesting, because I was not aware of that concept as I was writing it. I think I write about it because it is such a basic human emotion. Everyone—almost everyone—feels shame on some level at various points in their lives.

In many of the families in this book, a parent has a favorite child. Do you think that's usually true in life?

I think that parents do have favorites, even though they don't think so. Children are people, they're just as different from each other as anybody else. So the parent who aligns themselves, sees something of themselves, whatever, it doesn't mean that they have a *favorite* child, it just means that they have a particular relationship with that person.

This is not your first book about PTSD. How did you become interested in that topic?

For years I taught at Manhattan Community College, and one semester they asked me to teach a children's literature class. One book I chose was *Fallen Angels*, about the Vietnam War. I did all this research, and my heart started to go out to the people who had been suckered into fighting this war. Certain people can go to war and can come home and they can manage it. But I'm interested in those who can't.

Your characters range widely in their devotion to religion. How has your relationship to religion changed over

your lifetime? We get into problems with the words, like *religious*, *spiritual*, all those words mean so many different things to different people. But I've always been curious about the concept of God. Having written about the minister in *Abide With Me*, I wrote a lot of it out [of my system]. But I guess I've come to a point where I can only say that I think that there's much more than meets the eye.

Have you ever felt like your work was received differently as a woman?

I can't give you a specific situation, but it's certainly there. I'm perfectly aware that because I am a woman writing about white people, that it's a problem. But it's not a problem I dwell on, because there's absolutely nothing I can do about it.

The concerns of Middle America have been a big topic since the election.

Is that the demographic you depict?

I write about class. Every single book has class running through it very strongly. I'm interested in ordinary people and what their inner lives are like. Since I was a young child, I have been aware that inside every person is a universe, and that we'll never know what it feels like to be another person. Which is horrifying.

You wanted to act when you were young. Why did you change your mind?

I always wanted to be a writer, and then in college I was interested in acting. It's not dissimilar. It's always wanting to know what it feels like to put myself into somebody else's skin. But with acting I realized you don't have the control.

Would you ever write a memoir? No. All my different life experiences—and there have been many—will either find their way into a piece of fiction or not.

—SARAH BEGLEY

'Inside every person is a universe, and we'll never know what it feels like to be another person. Which is horrifying.'



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